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ORIGINAL ARTICLES.

THE USE OF ELECTRICITY IN THE TREATMENT OF DISEASES OF THE FEMALE PELVIC ORGANS.

Read before the Medical Society of the District of Columbia, December 19, 1888.

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Electricity is not unlike all other things in medicine, as regards its invariable tendency to do good even when applied under the most favorable conditions and in the most careful manner. Yet, a great deal of good can be done with it when it is wisely used. It has, I think, been used in medicine about sixty-five or seventy years, and during that period nearly all diseases have been subjected more or less to its influence—usually without any regard to system and frequently without any evidence of reason. This is probably due to the lack of knowledge as to its method of influencing living tissues. During the last few years it has received more attention from scientific men, and its effect upon the human system has been quite thoroughly investigated. The conditions in which it is likely to prove valuable as a means of treatment, have, to a great extent, been classified. For about three years it has been carefully studied in relation with female pelvic troubles, such as fibroid tumors, inflammatory deposits of long-standing, subinvolution and ovarian neuralgia.

The treatment of extra-uterine pregnancy in its first few months has probably become the greatest field for it, inasmuch as many so-called cases have, in this country, been reported cured by it, and the majority of prominent gynecologists of this country prefer its application to the use of the knife during the first five or six months of this condition. No uniform rules are followed in its application to erratic gestation, some preferring the faradic current, but most advocating the galvanic—claiming it is less liable to produce rupture of the gestation sac. But few of these cases have, I think, been positively diagnosticated, and I believe in but two or three cases in which electricity has been used for this unfortunate condition, have the products of conception actually been seen. I saw one of these, and assisted in removing, per vaginam, a five months' fœtus from Douglas' cul-de-sac. The reporter of the case claimed to have diagnosed the condition during the thirteenth week, and began applying the galvanic current. This was continued about three weeks, and the extra-uterine growth continued to increase in size after the use of the galvanic current was discontinued. It is interesting to know that electricity was passed through the pelvic organs two or three times during the month, just after the last menstrual period. I can hardly attribute the death of this fœtus after the end of the fifth month to the use of the galvanic current between the twelfth and the fifteenth week.

Great claims are being presented for the efficacy of the galvanic current in dispersing fibroid tumors of the uterus. Particularly is it advocated in this class of cases by Apostoli, Keith, Newman, Freeman, Engelmann and Cutter. Its value in this direction is, I believe, overrated

In two cases that I had diagnosed uterine fibroids, the growths disappeared after several applications of the electric current. One of these was, as I thought, a fibroid of about one and one-half inches in diameter, situated in the posterior wall of the uterus. The woman's general health was bad, but rapidly improved while using a mild galvanic current twelve times in four weeks. At the expiration of the time mentioned, the uterus had become perfectly normal. My diagnosis was made the first time I saw her, and three subsequent examinations did not lead me to doubt the correctness of it.

The other case was multiple fibroids of the uterus and very troublesome. In this case I used the faradic current to relieve pelvic symptoms. These tumors also disappeared. I believe, however, the electric current was not the real factor in their removal, inasmuch as such growths frequently disappear without any treatment whatever. The other case, I now believe, to have been incorrectly diagnosed, that no tumor existed, and that something else was the enlargement I felt—possibly a hypertrophic thickening of the posterior wall of the uterus. My reason for thinking I erred in the diagnosis is that I

have treated with galvanism quite a number of patients suffering with uterine fibroids of various sizes, shapes, locations, etc., the treatment in most of them being diligently pursued for some months, and in none of them, except the above mentioned, did I notice any diminution in the size of the growth during the treatment. One of the two cases cited was one of the first subjected to this kind of treatment, and I was then too enthusiastic in the work to pause for impartial reasoning or to think I might be wrong.

At any rate, I cannot see what reason the advocates of "electrolysis of fibroids" have for so terming the electric action they describe. Certainly no breaking up of the chemical constituents of the growths occur, except, perhaps, some simple salt like sodium chloride is decomposed. But the albumenoids and other complex proximate principles are not broken up, consequently electrolysis does not occur.

Even if it does take place at the poles chemical change does not extend any appreciable distance into the growth. In hard fibroids of from nine to twelve inches in diameter, I cannot conceive how any electrolytic action can take place throughout the tumor, without irreparable damage to the delicate adjacent tissues. How can a current so powerful be confined to the growth when the surrounding more delicate tissue has so much greater conductivity.

The galvanic current has been used considerably in the treatment of inflammatory deposits about the uterus, punctures having been made and powerful currents used as in the treatment of fibroids. I believe mild currents, if applied oftener and longer, both in duration of application and period of treatment, will prove more serviceable. This has been the plan of treatment of the cases related in this paper.

The profession, in general, has not shown much ambition in the treatment of acute inflammations with electricity. I have frequently used it in decidedly acute inflammations, and even in the first stage with most excellent effect. I was pleased by a short article on that subject by Dr. E. H. Grandin, of New York, that appeared in an August number of the *Medical Record*, (Vide vol. xxxiv, 204, 1888.) My limited experience is in accord with that of Dr. Grandin. I think the electric current, either the galvanic or the faradic may many times be wisely substituted for the knife in diseases of the ovaries and oviducts. Mr. Lawson Tait, basing his opinion upon a few cases that came to him for operation after having been treated by electricity (no description of this treatment being offered), denounces strongly, the application of electricity for such cases, (Vide *Medical Record*, N. Y., 1888, xxxiv, 553.) I do not believe that had Mr. Tait given electricity a fair trial in his own practice he would have yet reported his second thousand of consecutive abdominal sections. He has become so expert in abdominal surgery that I doubt his allowing this form of treatment to be superceded by any other, without great reluctance.

I have had a few cases in which the action of the continued galvanic as well as the faradic current has been positively intolerable. The history of one of them appears in this paper (case No. 8).

Certainly case No. 7 was far more nervous than this patient, yet the effect was so decidedly opposite to the result in No. 8.

There is a class of cases that cannot tolerate the application of electricity—not even the amount of electro-motive force just sufficient to overcome the resistance of the tissues through which it passes. I am unable to see anything about these patients that could, in any respect account for the intolerance of the current. It is probably an idiosyncracy that will only be known after attempts to apply the current have been made. The batteries I have used were made by Waite & Bartlett, of New York, and have been faithfully cared for. I have usually applied the galvanic current just strong enough to be not uncomfortable to the patient. Each séance usually lasted from fifteen to thirty minutes, and usually repeated on alternate days, but occasionally, applications were made every day. The treatment was usually supplemented by tamponnement with small woolen pledgets that were left *in situ* until just before the patient was to return for another treatment. The galvanic current was used in every case, and occasionally the faradic current was employed for its tonic effect, and for the relief of pain. It was usually successful in both of these, and its salutary effect upon constipation was occasionally noticed. I append the histories of a few cases, mostly chronic, pelvic inflammations showing the effect of the mild, galvanic current.

Case 1.—Mrs. W., æt. 31 years; widow; has three children, the youngest being 3 years old. Last confinement severe—finally delivered instrumentally. Has been an invalid since that event, cannot walk one block; suffers very much with pain in "bottom of stomach"—constant fear her "insides" will fall out; constipated; has continuous discharge from bowels. Menses regular and profuse; appetite poor; general condition bad. I first saw her when she came to my office in a carriage, July 29, last.

An examination revealed perineum torn almost into bowel, and a glairy discharge from rectum. The uterus was very low, considerably enlarged, and firmly retained in a retroverted position by the dense and thick adhesions from a former cellulitis. The cervix uteri was deeply lacerated bilaterally. I applied the galvanic current for twenty minutes, placing the positive pole against the roof of the vagina and the negative on the abdominal wall just a little above the symphysis

pubis, and applied a few woolen pledgets against the retroverted fundus uteri for gradual pressure. I also gave her the following: ℞. Tr. nucis. vomicæ, tr. belladon. āā ℥ss. m. et. sig. 15 drops t.i.d. in water. This treatment was continued quite regularly three times a week, until October 9, when the pelvic deposit having been entirely absorbed, the uterus in good position, and the patient's general condition much improved, I operated for the perineal and cervical tears. The union was complete in both localities, and three weeks later, she resumed her household duties. November 25, I examined this patient, and found the pelvic organs in a perfectly healthy condition. A Simpson sound passed into uterus three inches. She said she had gained thirty pounds in weight since August 1, last, notwithstanding the two operations she underwent in the meantime.

Case 2.—Mrs. H., white, æt. 32 years; came to me September 31, last, and gave the following history: At the age of 20 years she married and had two children, both of which are now living. Her husband died six years later. During one of her confinements the cervix uteri was torn, and she had womb trouble following it. During her widowhood she was operated upon for the laceration, and was married again about two years ago. She felt well until last spring, when she had an abortion produced, and was in bed about three weeks following it. The doctor told her she nearly died from fever. Has not felt well since, is thin, delicate and nervous; suffers with profuse menstrual flow every three weeks, and constant bearing-down pain with headache. After walking a short distance she is obliged to lie down. An examination revealed the uterus retroverted and bound down by a firm pelvic exudate on every side. The sound passed three inches, the cervix tender, considerable catarrhal discharge was seen oozing from its canal. Applied a solution of silver nitrate (20 grains to ℥j) to cervical canal and dry wool tamponade to posterior fornix vaginæ. Two days later she returned, and I began a course of treatment by the galvanic current, as in case 1, extending the séance to thirty minutes and applying the wool as before. October 16, made the seventh application.

I succeeded in replacing the uterus, which has no tenderness nor catarrhal discharge. Patient states she has gained six pounds since her first visit, and feels comparatively good. November 4 to 6, menstruated—no pain and normal quantity. Treatment continued until November 16, when it was discontinued. The uterus was then in normal position, sound passed two and three-fourth inches, and no pelvic adhesions can be found. She feels perfectly well.

Case 3.—Mrs. H., white, æt. 34 years; married. I was called to see her June 28, last, and found her suffering with a large pelvic abscess to the left of and behind the uterus, reaching up into left inguinal region. She had been married twelve years and had three children. Since the birth of the last child, she has had three abortions. Since her last confinement, six years ago, she has suffered with womb trouble; menstruation occurred in latter April, but she did not think she was pregnant again, as no symptom as in former pregnancies was present, except nervousness. She was taken with severe pelvic pains with hæmorrhage from the uterus on the 17th of June. This began without warning a short time after coming in from a drive behind a fractious horse that afternoon. The pains continued until near morning, when her doctor said she passed something that she now thinks was the result of another abortion. She had fever a few days later and great swelling and pain in lower abdomen. She suffered so much with pain, that her doctor gave her suppositories of morphia and belladonna, but the fever had never gone away. On my first visit I found her in bed, with a feeble pulse, some fever and a hectic flush to cheeks; an eruption all over the body, that she stated had appeared during the past week. I attributed it to the use of belladona, and it shortly disappeared after I stopped the suppositories. The uterus was found enlarged, immovable, and very tender. It was pushed forward and to the right by a large abscess that was quite prominent in left inguinal region; fluctuation was distinct through Douglas' pouch as well as through abdominal wall. Considerable sanious discharge from uterus was present. The same day I opened the abscess through the abdominal wall and let out about a quart of yellow pus. A grooved director was then pushed through the vaginal roof in the median line, behind the cervix uteri against my right index finger, in the bottom of the abscess cavity. Through the new opening I forced my left index finger. The cavity was then flushed with about a gallon of hot solution of corrosive sublimate, 1 to 1,000. A long rubber drainage tube was passed through the abdominal opening and pulled out through vagina. The solution of mercuric chloride was used for cleansing the wound. Patient rapidly improved, and the abscess was healed by the 10th of August. August 27, she came to my office. Had just had a troublesome and profuse menstrual period and felt weak, complained of little jars received in riding on street car. The uterus was found still immovable, somewhat enlarged, very hard and settled back to a position about normal. The whole pelvic organs seemed to be in a mass as if set in plaster of Paris. I began using a mild galvanic current, the positive pole applied to vaginal roof performing the work. The current was used twenty minutes, and this frequently followed by the negative pole of the faradic current along the spine

for five minutes. She was also given the following prescription:

℞. Hydrarg. bichlor. . . . . gr. jss.
Tr. ferri chlor. . . . . ℥v.
Syr. zingiber. . . . . ℥j.
Aquæ . . . . . ad ℥iv.
M. et. sig. Teaspoonful in water after meals.

This treatment was continued until October 26, at which time she was obliged to return to her home in Pennsylvania. The galvanic current had been applied about three times a week. At her last visit she stated she had just passed her menstrual period, and with very little inconvenience. A careful examination was made at this time. Her general condition was much better and she complained very little. The uterus was fairly movable, although no smaller, but the pelvic exudate was lessened in amount and softened.

Case 4.—Mrs. S. M., a widow, 44 years old, first came to me June 15 last. She had had three children, the last of which was born fourteen years ago. This labor was severe; she was delivered by forceps and torn. She had child-bed fever and made a bad getting up. She has suffered ever since with profuse menstruation every three weeks, sometimes oftener, and a sensation of weight in her stomach. Large clots were passed every time she was unwell, and the prostration incident to each attack would hardly be overcome in the interval following it. She has been treated by three or four physicians, all of whom told her her trouble was fibroid tumors of the uterus and treated her with ergot and other remedies. Her last physician, after a course of treatment extending over six months, told her relief would come only with the change of life. Her appetite was poor and the feeling of weight pronounced. I found the perineum torn down to sphincter ani muscle, the vaginal walls flabby, and the uterus symmetrically enlarged to about twice its natural size, a little lower than it should be and fixed. The cervix was bilaterally lacerated almost to the cervico-vaginal junction and the vaginal roof thickened and very dense. I could not find a fibroid tumor, and so informed her. I applied the galvanic current as in the other cases, with the occasional application of the positive pole to the interior of the uterus a few days before the expected flow. Dry woolen pledgets were also placed against roof of vagina, sufficiently large to cause slight upward pressure. I noticed the intra-uterine electrode passed the first time 4½ inches. She improved considerably, the hæmorrhages lessened in amount and frequency. Early in August the intra-uterine electrode would pass but 3½ inches. The flow did not appear in September until near the natural time, and in October it was quite four weeks later, lasting but three days and containing no clots. It did not appear at all in November—no premonition of it even appearing.

November 3. The uterus is movable to a considerable degree, and is smaller, its cavity measuring but 3 inches. There is yet some thickening of the vaginal roof.

Case 5.—Miss C., æt. 32 years, white, first came under my care July 12 last, when she came to my office, accompanied by her mother. Her history is as follows:

Began menstruating at 12 years, has never missed a period, nor been free from pain at that time. Has become very severe during the past two years, requiring her to take ½ gr. morphia suppositories, and to remain in bed the day preceding the beginning of the flow, and during the first two days of it. The last period was the worst of her life and she dreads the next—three weeks off.

During the intermenstrual periods she has a dull, heavy pain in lower part of abdomen, most marked on the left side. Her appetite is poor and she is troubled with constipation. Has been treated in Richmond and Philadelphia. She and her mother feared the ovaries would have to be removed, as that had been advised in Richmond, and in Philadelphia they were told nothing else would cure her. She readily consented to an examination, which revealed a small, retroflexed uterus and enlarged and unusually tender ovaries which could be fairly well outlined by the bimanual method of examination, the patient lying in the lithotomy position. They were low but movable. I began to use the galvanic current that day, applying it every day thirty minutes. The current was very comfortable to the patient. After it was stopped I applied a small pledget of wool against the fundus uteri and allowed it to remain there until just before her return the next day. Once I had to give her a mild laxative. This treatment was continued until she came August 4. She preferred no treatment that day, as she felt she was going to be unwell soon. She was suffering from pain through the pelvis. She consented, however, to be treated, and I applied the positive pole of a mild faradic current to the uterine cavity for about ten minutes—the negative pole being placed over hypogastrium. She began menstruating during the following night and had very little pain, but remained in bed for two days. The flow lasted four days.

August 11. Patient returned and treatment resumed. An examination at this time showed the ovaries to be less tender and their position a little higher. I pursued the treatment of this patient diligently, hoping to render oöphorectomy unnecessary.

The next menstrual period was passed with but slight uneasiness and she did not remain in bed. After this period the ovaries could not be felt with the patient lying on her back. I continued the galvanic current for three weeks—applying it on alternate days after the last menstrual epoch. At this time, September 28, she went to her home in

Virginia. At her last visit to me I carefully examined her pelvic organs. The uterus I found in a better position than at first and, I think, a little larger. The whole pelvic viscera had lost its unusual tenderness. She stated she had gained in weight 6 lbs. I have not heard from her since she left the city, but think she would return if she was not feeling well.

Case 6.—K. S., æt. 24, white, single, came to me June 15 last, suffering with almost constant pain in lower abdomen, that gets worse after walking even a short distance. Menses profuse and painful, occurring irregularly, although about every three weeks. She cannot go up and down stairs without considerable pain, and that interferes materially with the proper performance of her duties as housekeeper in a large boarding-house. She confessed having had an abortion performed in June, 1886, after having missed two menstrual periods, and did not get along well afterward, although she did not consult a physician. An examination revealed a dense vaginal roof, holding quite firmly an enlarged, congested and tender uterus; considerable catarrhal discharge was oozing from the eroded cervical canal. A solution of alum in glycerine was applied to the canal and the galvanic current was passed through the inflammatory deposit. A small pledget of dry wool containing some powdered borax was laid against the external os uteri. The discharge from the canal ceased about the middle of July. The galvanic current was applied thirty-six times, the last application being made October 12, when the uterus was movable, reduced in size to about normal, and the cellular tissue about it showed no abnormal deposit. She was feeling very well and had passed the last two menstrual periods four weeks apart, without pain or undue quantity of flow. She was working every day.

Case 7.—Mrs. B., white, æt. 22 years; she is a tall, thin blonde and has been married six months. She came under my care October 4 last. She had generally had a great deal of pain at the menstrual period, but it has been worse since the date of her marriage. The first menstrual epoch after her marriage was two weeks late, and then appeared only after her taking medicine upon the supposition that she was pregnant. She did not desire children and believes she prevented it in this instance. She was confined to bed afterwards with pain so severe that, as she says, she had to take large doses of paregoric to live. She has felt badly ever since, suffering with extreme tenderness in lower abdomen and pain in back. Her last menstrual period ceased one week ago.

At her first visit she appeared weak, pale and nervous. The conjunctivæ were pale, and she walked slowly and carefully with a slight limping on the left side. She complained of frequent and painful micturition, loss of appetite with frequent nausea, constipation and night sweats. She thought she had malaria, as she was having a chill every day.

October 5 I examined her and found the vagina short and its walls deeply congested and tender. The uterus, retroflexed and retroverted, was quite firmly held in that position by a thick cellulitic deposit to the left and behind it. The eroded cervix uteri was covered by a thick muco-purulent discharge. Applied the galvanic current three times a week. October 10, she felt much better. I added faradization of the spinal cord as a tonic.

This treatment continued until October 31, when patient stated she felt real well and had gained 6 lbs. She has no trouble with stomach, bowels or bladder. The uterus is movable but enlarged, very little inflammatory thickening to roof now felt. Uterus easily pushed forward but no discharge from cervical canal; appetite good, no nausea.

The positive pole was applied after this, each time, to the interior of the uterus until the 12th of November. On the 20th she returned to state that she felt perfectly well, and had menstruated four days since her last visit; did not feel uncomfortable during it and is now doing her own housework. She has no limping and has no trouble from walking. I found the uterus slightly retroflexed and its cavity of normal length.

Case 8.—Mrs. S., white, æt. 37 years; has had seven children followed by an induced abortion at two months two years ago. She was very ill after that and has never recovered from it. She is almost an invalid, having constant dull pains through pelvis that become lancinating after much exertion, requiring her to remain in bed. Menses profuse, and agonizing, lasting from five to ten days; complains of neuralgic headaches, loss of appetite, constipation, and cutting pains when voiding urine. An examination revealed the uterus to be large, hard, and in normal position, but surrounded by a thickened vaginal roof. Any movement of uterus causes considerable pain and prostration. The galvanic current was applied as in the other cases and the nervousness following it was marked—so much so that the application was not extended beyond ten minutes. This occurred July 19 last; after she had rested about one-half hour, small pledgets of wool were applied against vaginal roof around the cervix. She did not return until August 1, at which time she claimed to feel better and that her bowels had been regular without medicines since her last visit. She was anxious to have the electric current reapplied, as some friend had had a "modern miracle" performed on her in New York by means of this agent. I did not like to repeat the experiment of two weeks ago, but as the patient was anxious to have it tried again I repeated it. This time the application was barely perceptible to patient, yet I had to discontinue it after about six

minutes on account of faintness and loss of motion in the lower extremities; her face was very pale and the pulse alarmingly weak. My faradic battery was convenient, and I applied the interrupted current along the spine for a few minutes. It was about an hour before she could walk. I treated this patient until the 2d of October, but did not again employ galvanism on her.

Case 9.—Mrs. A., 42 years old, consulted me July 2 last, regarding some pelvic trouble. She had had two children and a miscarriage at three months three years ago. Her trouble dated from the miscarriage. She suffers with pain in back and bearing down, poor appetite and nervousness. Menses profuse but regular, requiring her to remain in bed four of the six days every month. Has been under the care of a few specialists for a year. I found the vagina large and its walls relaxed—uterus enlarged, low and retroverted. It was almost immovable, very tender to touch, and seems to be imbedded into the thickened vaginal roof.

Galvanism three times a week for thirty minutes, each application being followed by a gradual pressure against the lower side of the fundus uteri by woolen tamponades. She expressed relief just after the first treatment. This method of treatment was pursued until the 9th of October, when the condition seemed normal. I made twenty-six applications of the galvanic current to this patient during the course of treatment.

I do not think much improvement occurred in case 3 during treatment by galvanism. She felt very well, but this was, I think, not due to improvement in the condition of the pelvic organs. Many women suffer a great deal from conditions about the same as this woman has, and I think she will sooner or later have a recurrence of pelvic pain and sensitiveness.

The result in case 5 was very pleasing to me, as I am very glad to save a woman her organs of reproduction whenever it is possible to do so.

If electricity is of much value in this class of cases, I think it has a great field in the future, and should be thoroughly tried before the ovaries and tubes are subjected to the knife.

I do not think much good will come from the use of electricity in large pelvic abscesses or in tumors of a cystic or malignant nature. But I think nearly all other diseases of the female pelvic viscera are amenable to its restorative influence. Even small abscesses and small cysts of these structures are, I believe, curable by the judicious application of this remedy. In many of the cases that have been reported as cures of ectopic gestation by electricity, the condition of the patient's pelvic organs previous to the discovery of the so-called pregnancy had not been known. The diagnosis in them was faulty, but the treatment perfectly satisfactory. It is not unfair to assume that some of these cysts were not pregnant cysts, but arose in some other manner. Certainly no failure, even in quite inexperienced hands, of the electric current in such cases has ever, to my knowledge, been published.

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THE BACILLUS OF KOCH, AND ITS PATHOLOGICAL INFLUENCE.

Read before the Chicago Medical Society, February 18, 1889.

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It has taken practically over twenty-two years to develop the exact pathology of tuberculosis up to its present degree of completion. Since 1865, when Villemin proclaimed that by vaccination with tuberculous matter, an identical process like that of human tuberculosis could be brought forth in some of the lower animals, the contagious and infectious character of tuberculosis was partly believed or assumed by many. This, however, does not eclipse in the least the brilliancy of Robert Koch's discovery of the specific cause of tuberculosis, nor does it alter the fact that this same discovery is unquestionably the most significant advance made in pathological investigation. Before Koch's memorable communication to the Berlin Physiological Society, the "cheese infection theory," as explained by Buhl, and the weakly "diathesis theory," strove for supremacy as the disguise for real ignorance as to the true cause of the tubercular process.

The student who desires a plain and truthful statement of the condition of our knowledge of tuberculosis before Koch's investigations can do no better than read Klein's paper in the *Practitioner*, for August, 1881. The results of Koch's investigations have been confirmed by every investigator, great or small. The result of this knowledge is used in our every day practice as data upon which we base diagnosis and treatment. Every doubt is silenced as to the specific character of the microörganism named by Koch the bacillus tuberculosis.

Morphology.—The bacillus tuberculosis consists of a cell *wall* inclosing a protoplasmic body called mycroprotein. It belongs to the smallest and finest bacillary forms known to us. Only the bacillus of mice septicæmia surpasses it in fineness. The length of the single rod ranges from 1.5 to 3.5 μ. — equal to .25 to .75 the diameter of the red blood corpuscle, and there width is from one-fifth to one-sixth of their length. The most of them are equal to half the diameter of a colored blood corpuscle. The ends of these rods appear to be rounded. The bacilli arising from an artificial culture fluid are in general shorter and finer than those growing in the animal organism. The largest forms are found in the sputum of phthisis. The investigations of Raymond and Arthaud,

recently published in a monograph, would prove that the length of the bacillus tuberculosis is in direct ratio to the acuteness of the tubercular process, and it is my belief that the fineness of the bacilli and their straightness seem to bear the same relation. That is to say, the long forms are found in acute miliary tubercules, the shorter in those of a longer course, while in the very chronic the great majority of the microörganisms appear as mere cocci and the rods are thick and crooked. These facts are of very practical importance. In the interior of recent tubercular foci and in young artificial cultures the rods are straight. In the older artificial cultures and in phthisical sputum we meet, besides the nearly straight forms, a majority of slightly bent or curved forms. In still older cultures of low vitality, or in cultures that have been cut off from the air, we find the thick curved form still more numerous, and that the straight forms have nearly or quite disappeared. May we not, therefore, make the following query: Is not the thickening and bending but steps in the process of degeneration of the bacillus tuberculosis (*i. e.*, lessening virulence), and, if so, may we not use this fact as an aid in prognosis, and as a guage, in given cases, as to the possible effect of therapeusis? They are all non-motil.

Artificial Cultivation.—Koch found that from his artificial nourishing grounds innoculated with tubercular matter, he could produce a growth of peculiar characteristics, consisting of the bacillus tuberculosis. They form dry, glossless, compact whitish scales, about the size of a poppy seed, which lie loosely on the upper surface of the dessicated blood serum. They never grow into the the same, nor do they ever liquefy it. They do not grow into even the liquid expressed from the blood serum, but always upon its surface. All this is characteristic. No such appearance is presented by any other known bacterium. Their extraordinary slow growth is another characteristic. Not until after the eleventh day are they visible to the naked eye. Two weeks later they attain their maximum growth.

The culture of the bacillus is a most difficult task (of which, more anon), but when a pure culture is produced we may go on *ad infinitum*. If the serum, or the water expressed in dessication of the serum, grows dim, it is a certain sign that the culture is contaminated.

Examined under a low power, say 30–40 diam., these little elevations are found to consist of dainty spindle or "S" shaped colonies. Under a higher power, and after staining by Ehrlich's method, we find these colonies to consist of bacilli arranged parallel to each other, with their long axis corresponding to that of the colonies.

The substances used as media in which to cultivate the bacillus tuberculosis are not very numerous. Dessicated blood serum stands at the head of the list, for many reasons. Agar-agar is fair, but we do not get the characteristic growths from it. Next in order of fitness we may mention meat-infusion, peptone-agar, liquid blood serum, and bouillon. In the latter, when placed in Erlenmeyer's bulbs, and vessels of like sort, the bacilli settle to the bottom, forming a delicate layer, resembling sand. Nocard and Roux found that the artificial growth of the bacillus tuberculosis is favored in a remarkable manner by the addition of glycerine to the culture medium. According to these experimenters 6 to 8 per cent. should be added to the serum, agar-agar, or gelatine. The addition of 20 per cent. of neutral peptone to the glycerine before its addition to the serum, and 50 per cent. of peptone to equal parts of bouillon, will be advantageous. Under these conditions the bacilli are more fertile and larger. According to Koch's method the bacillus tuberculosis grows only between 30–41 degrees, Cent. The raising or lowering of this temperature, even by so much as a fraction of a degree will hinder their development, so sensitive are they to deviations in temperature. With this fact in mind it is difficult to conceive of their undergoing any phase in their life history outside the human body. We may readily believe, too, that an accurately working thermostat is absolutely necessary. Equally important is the act of implantation. Besides the care required to prevent accidental contamination it is necessary that the innoculation material be placed on the surfaces of the serum in the daintiest and most cautious manner, so that after the innoculation the point of innoculation be almost invisible. Another item of success is the moist, succulent condition of the serum. When the latter becomes dry by evaporation, whether before innoculation, or during the time it is in the incubator the cultures fail regularly. To obviate this rubber caps are fitted over the cotton at the end of the tubes. Probably the salubrity of the glycerine-containing mediæ is due to some extent to the better retention of a moist condition in the upper stratæ from the presence of the glycerine.

Spore-Formation.—The phenomenon of spore-formation is still *sub judice*. A brief review of the various experiments and opinions would not be amiss here. We may take as the ripe bacilli those that present when stained a homogeneous appearance, without points of special tinctorial susceptibility. In others stained under precisely similar conditions, we find unstained spots that give them a beaded appearance. These unstained spots were regarded by Koch as endogenous spores. This opinion is still probable but not surely accepted. No one has as yet seen the germination of bacilli from these spots, nor has any one as yet been able to stain them. This, however, does not disprove Koch's opinion; on the contrary, in proof of it stands the great similarity of the endogenous spore formation of other bacteria, and also the great tenacity to life of the bacillus tuberculosis, the latter

being, indeed, especially characteristic of organisms of endogenous spore formation. Against this, again, mitigates Volsch's experiments, who, following the line marked out by Baumgarten, concluded that the bacillus tuberculosis has equal tenacity with or without these colorless spots.

We may ask, therefore, whether these unstained spots are really spores, or "vascular degeneration" (Baumgarten), such, for instance, as we see in the typhus bacillus; further, we find accompanying the bacillus tuberculosis, whether in the animal body or in pure cultivation on blood serum, round bodies which are comparatively quite readily stained and these have been regarded as possibly spores. Against this we have the following: If the *unstained* bacillus be examined in a weakly refracting media, we find spots of greater brightness within the body of the bacillus, and in the bacilli found in tubercular sputum, which are the very ones that show a great resistance to destructive agencies, are found the greatest number of glistening spots. It is, however, our opinion that the glistening spots are not spores, but vacuoles covered by part or a whole of the limiting membrane; that they are a portion of a process of degeneration; *i. e.*, occur at the time when the bacillus is threatened with destruction; but that they are connected in some way with spore formation; that they probably are the matrices out of which the spores have escaped. In support of this opinion, we observe:

1st. Spore formation occurs most excessively under conditions least favorable to growth (see experiments of Raymond and Arthaud in "Études sur la Tuberculose," Part I). 2d. Under the same conditions the occurrence of stained round bodies in the surrounding media with same color reaction as the bacillus, and an equally large number of unstained spots in the bodies of the bacilli. 3d. That these same round bodies are very often suspiciously close to the unstained spots in the body of the bacillus. 4th. That under certain unfavorable conditions the bacillus tuberculosis metamorphose into a coccus form, which I believe to be simply sporulation. And right here we may draw a practical conclusion. Numerous opponents to the bacillary origin of tubercular processes have held up the fact that the bacillus tuberculosis is not always found in so-called tubercular pus—quite justly, too. But this is because only spores are present, which, although less readily stained, will develop into the characteristic bacillary form under the proper conditions.

Staining Reaction.—The bacillus of Koch has tinctorial qualities that differentiate it from all other known bacilli excepting the bacillus lepræ. It was Koch's original opinion that the bacillus tuberculosis alone could react to the alcoholic aniline solutions. This was found to be erroneous. The distinctive feature is their resistance to *decolorizing* agents, especially the mineral acids. We can best understand this phenomena by presupposing with Ehrlich that the bacillus tuberculosis possesses a tough capsule which, while resisting to some extent the entrance of the coloring matter, is impregnable to the decolorizing agent, thus distinguishing it from all known varieties of bacilla, with the exception above mentioned.

Agents Unfavorable and Destructive to Growth.—The bacillus tuberculosis is quite able to endure the influence of any or all of the digestive secretions of the animal organism, and especially those of the stomach, as was proven by Falk in his artificial cultures and by the positive results obtained by Schell and Fischer in their feeding experiments. The tuberculosis bacillus has a very great resistance comparatively to the action of all disinfectants. Thus, the bacillus tuberculosis was destroyed only after twenty hours' contact with a 3 per cent. carbolic acid solution. This latter substance is therefore not to be relied upon, especially in the disinfection of tubercular sputum, in solutions of less than 5 to 10 per cent. Another fact of some importance is that corrosive sublimate is not applicable in disinfection of sputum; not because of a resistance on the part of the bacillus tuberculosis to this most powerful germicide, but because it *curds* the sputum, thus materially hindering the complete mixture of the solution with all parts of the sputum. In pulverized sputum the bacilli were destroyed in twenty hours by 1:5,000 H_2cl_2. Baumgarten showed that a solution of 1:1,000 destroyed the spores in a very short time. Schell and Fischer found that besides carbolic acid and corrosive sublimate, absolute alcohol, sat. sol., salicylic acid, acetic acid, liq. ammoniæ caustica, sat. sol. of aniline in water, and the vapor of aniline oils generated at the temperature of the room would kill the bacillus after twenty hours. Practically we have no destructive agent that can be compared to heat, and especially moist heat, and this should be employed whenever possible.

To conclude this section we will discuss the question whether iodoform has any influence upon the growth of the tuberculosis bacillus or not. From the experiments of Baumgarten, Kunz, and the latest, of Rosing, we must doubt its power. The observations and deductions of Bruns and Nauwerck have slight weight as against these latter experiments. These surgeons claim that by the injection of iodoform into tubercular abscesses they were not only able to terminate the abscess, but to actually reduce the number of bacilli in the abscess walls. First, we must know that the number of bacilli in tubercular abscess walls are constantly changing. And, further, supposing that the number were reduced, we cannot say positively that this result was due to iodoform, as Bruns injected not pure iodoform, but a solution of it in alcohol and glycerine. We know positively that the former agent is a direct

poison to the bacillus tuberculosis. We know, too, that it is highly wrong and inconsistent to add glycerine to anything intended to hinder the growth of the tuberculosis bacillus. Further, we must consider, according to the researches of Baumgarten in the healing of tubercular abscesses, that the bacilli in them possess a relatively minor energy, an insignificant malignity; that the colonies are comparatively small, and that these colonies are few in number. The majority of these are in a good way to die off of their own accord, and it only requires the removal of the detritus, to prevent auto-inoculation, to bring about a cure.

Pathology.—The greater portion of the time allotted to the reading of this paper has already expired, and it seems like a pathological sacrilege to attempt a presentation of so great a subject in so short a time as remains. However, I will deal with it as best I can, though, as you must know, only cursorily.

The bacillus tuberculosis may gain an entrance into the human body in one of three ways: first, by respiration; second, by alimentation; and third, by inoculation. The subsequent pathological varieties will depend: 1, upon the conditions of the tissues of the individual; 2, the place of invasion; and 3, the vitality or degree of malignity of the bacilli invading.

1. The individual. There can be no doubt that there exists in some people a susceptibility to and in others an immunity from the invasion of the bacillus tuberculosis. The dog as a class enjoys an enviable immunity, the rabbit a susceptibility. This susceptibility may be inherited or acquired.

2. The place of invasion. It is a remarkable fact that no macroscopic changes occur in the great majority of cases at the place of primary invasion except in cases of inoculation. This is due, most likely, to the minor virulent condition of the bacilli. As was pointed out under the head of "Conditions Favorable and Unfavorable to the Development of the Bacillus Tuberculosis," it is extremely improbable that they can develop outside the animal body, on account of their exquisite sensitiveness to temperature change, but disseminate themselves outside the body mainly as spores. In the majority of cases the invading bacilli are in their spore stage and develop into ripe bacilli after they have secured a suitable nidus in the body. Again, the normal secretion, at least of the alimentary tract, while not destructive, has a deleterious effect upon their virulence. An entrance gained, however, they are taken by the lymphatics either to the thoracic duct, and there poured into the blood, or they gain lodgment in the lymphatic system before this takes place and multiply, and the tubercular process begins.

Whether they develop at the point of primary invasion, which is rare, or gain entrance into the lymphatic or circulatory system before development, the results are the same—a more or less acute or chronic tubercular process. To be sure, the pathology of the resulting tubercular process will differ according to the mode of infection. Thus, in hæmotogenous invasion of the lung or an invasion by bacilli circulating in the blood, we have as a result the small or miliary tubercular process scattered throughout the lung parenchyma, one alveolus at a time becoming involved. This is easy to understand. When, however, a number of fully developed and virile bacilli are inhaled and they attack the epithelium of the whole lobule or lobules at once, the result is the cheesy lobular pneumonia. This process may be brought about in rabbits by intra-tracheal injection of pure culture bacilli. The identity of this process with a true tubercular process is not, I believe, sufficiently recognized in this country. The rapidity with which the bacilli are taken up by the lymphatics is astonishing. Three days after the inoculation of the anterior chamber of the eye of a rabbit they have already forced themselves into the auricular lymph glands. And in spite of the thorough removal of the affected eye at this early date the animal died of general tuberculosis.

When the lungs and kidneys are examined twenty-four or forty-eight hours after an intravenous injection of bacilli, it is only by the most thorough search that here and there a tubercle bacillus can be found. Yet, it is proven that fourteen days or three weeks later countless numbers may be found in the above-named organs, proving that a number are retained by these organs, and that they offer a favorable ground for their growth. It is wondered at why, in lungs and kidneys, in spite of a relatively small retention of bacilli, larger and more numerous foci are developed than in spleen, liver and bone. We may presume that the different organs do not furnish an equally good nourishing ground for the bacilli, that the lungs and kidneys furnish a more salubrious resting place than the bone and liver, a presumption supported by many analogies.

The histogenesis of tuberculosis cannot be dealt with here. We will content ourselves with studying that pathognomonic iota wrought by the bacillus tuberculosis—the miliary tubercle.

It is impossible to give a definite size to the tubercle. In one case it is invisible to the naked eye, in another it may be as large as a pea. When visible to the naked eye they appear as small round, more or less opaque, pearly-white nodules. When occurring in an organ that tends to retract when cut the tubercle stands out in bold relief.

Histologically the tubercle consists of a giant cell around which are arranged the epithelioid cells, smaller than the giant cells, around which in turn are grouped the lymphoid cells. The whole is most frequently held together by a reti-

culum. The absence of blood-vessels is characteristic of the tubercle. The lymphoid bodies are the first to appear at the point of attack of the bacillus tuberculosis. Their nucleus occupies nearly all their body, leaving only a small margin of protoplasm. On the sixth day after the inoculation of animals the epithelioid cells appear—the first distinctive step in the tubercular process. They appear at the point where the tuberculous bacilli are most numerous. Lastly the giant cells are formed, having their nuclei, ten to a hundred, *arranged in the periphery of the cell.* The epithelioid cells originate from the fixed epithelium and endothelium of the tissue involved. The giant cells are caused, most likely, by an inhibition of the normal cell divisions, the cell increasing in size notwithstanding. Between the cells and within them are grouped the bacilli. Twenty may be counted within a single section of a giant cell. The trabeculum is derived from the preëxisting connective tissue elements; changed, of course, by the new order of things. The roundness of the tubercle may be explained thus: In the beginning of the tubercle formation the cell-growth is greater at the centre of the bacilli colony than at the periphery and, as there is a pressure exerted upon the centre by the periphery, a rounding up, as it were, results.

Regarding the uncertainty of the presence of the giant cells in tubercles we would say that their absence is comparatively very rare. If microörganisms are not necessary in every case to the development of giant cells, we know that the bacillus tuberculosis possesses this capability to a supreme degree. Yet, like many other things in nature, they may fail.

The tubercles may undergo: 1, reformation; 2, calcification; 3, caseation; 4, liquefaction; 5, suppuration; 6, ulceration. Of these we will only speak of coagulative necrosis and suppuration. We cannot regard the caseous process (coagulative necrosis), as it occurs in the tubercle, in the sense used by Weigert in describing those processes taking place by reason of simple arrested circulation or nutrition; as, for instance, in a non-infected infarct. We must look to the bacillus for a part of the change wrought. True, lack of nutrition has something to do with it, but the digestive power of the bacillus has more. And it may be thus looked upon as characteristic of the tubercular process, that no formation *so small in size* as a tubercle undergoes such a change.

Suppuration.—The bacillus tuberculosis never forms pus. Only when the so-called tubercular granulation tissue has become infected with the staphylococcus or streptococcus can true pus be formed. The contents of a purely tuberculous abscess contains only a few round cells, but an amorphous shreddy material, the result of the digestive power of ths ptomaines from the bacillus tuberculosis upon the granulation tissue.

THE ETIOLOGY, PATHOLOGY AND TREATMENT OF ACUTE CATARRH OF THE UPPER AIR PASSAGES.

Read before the American Rhinological Association, September 12, 1888.

BY J. G. CARPENTER, M.D.,
OF STANFORD, KY.

The etiology of acute catarrh is either local or exciting, predisposing or constitutional: the use of tobacco, occupations attended with much dust, smoke, irritating gases, excessive moisture or dryness of the atmosphere, sudden changes of atmospheric temperature, as from a dry warm to damp or damp and cold weather, or from a warm room to the cold air without being sufficiently protected with wraps, getting the feet wet, standing or sitting for some time on a cold surface. A very pernicious habit is wetting the head, which is practiced daily by young ladies, and also by mothers and nurses, who wet the hair and scalp of children one or more times daily and thus develop acute or subacute catarrh, and the child is seldom over one attack before another begins; finally chronic catarrh of the upper air passages is established. Exposure to the night air without extra wraps is one of the most frequent causes of acute catarrh. Wearing damp clothes, changing beds and sleeping in rooms without fire (when not accustomed to the latter), exposure to currents of air, insufficient clothing, substituting light and thin goods for heavy and warm ones, changing boots for shoes or slippers, going without collar, cravat or cuffs, sitting up late at night and allowing the room to cool before retiring, facing the wind in traveling and not having the nose, mouth, throat and chest protected with extra wraps, removing the clothes and exposing the body in an almost nude state for half an hour or more before retiring, as many ladies do, are prevalent factors in the production of acute catarrh.

Mothers and nurses often develop acute inflammation of the upper air passages by getting up at night with children or patients in the cold air and not clothed properly; the body is not kept at the same temperature as when in bed, the consequence is that the integument is quickly chilled, its action suppressed, and through reflex irritation the mucous membrane of the upper air passages becomes congested or inflamed, as it is generally the weakest point, and most subject to irritation.

Too much clothing, as wearing sealskin sacques, chinchilla ulsters, fur collars and overshoes, on improper occasions as in pleasant weather, and not removing them on entering the house, church, theatre, or when making social calls, is equally as prone to develop acute catarrhal inflammation as insufficient clothing and undue exposure to inclement weather. The body should be clothed so as not to cause perspiration nor chilling.[1]

[1] It is said that sealskin sacques have in a given time caused more deaths than small-pox in New York (Bosworth).

Two barbarous customs are: first, the kind of hats or bonnets worn by women, which give no protection to the head; second, the manner in which boys and girls are dressed by the affluent, viz.: overclothing the trunk and head and allowing the limbs to be in an almost nude state, especially the knees, legs and feet, even in the coldest weather.

One of the most, if not the most prolific causes of catarrhal inflammation of the upper air passages is the treatment given infants immediately after birth. Generally the first thing that happens to the babe after the establishment of respiration is a cold in the head; or, as the nurse would say, "the little thing has the snuffles." It should be the exception and not the rule for infants to acquire a rhinitis shortly after birth from unnecessary exposure, chilling and sudden radiation of heat and evaporation of the body. It is quite common for the specialist to hear, "Doctor, my child has had a cold since its birth." The infant, before nor after severing the cord, should not be exposed, but wrapped in flannel of several layers in thickness. If very feeble, the cord should not be severed until pulsation has ceased, then artificial heat applied, the skin anointed with vaseline and the clothes quickly adjusted, an extra wrap applied and the babe placed at the mother's breast. If necessary, in the fall, winter or spring, artificial heat should be used. At the time of birth the temperature of the room, for the benefit of the babe, should range from 85° to 100° F. A sudden change of temperature from 20° to 60° F., from hot to cold, would injuriously affect a robust adult, nude or unprotected; how much greater must be the change and shock in the newly born babe, born and washed and dressed in a cold room and unnecessarily exposed. Many affections of the nose, throat, ears, eyes, trachea and bronchi could be avoided in children subsequent to birth if the accoucheur would use the proper precautions, and give the appropriate directions.

Constitutional causes of acute catarrh are rheumatism, malaria, measles, scarlatina, small-pox, diphtheria, uterine affections, especially endocervical metritis, neurasthenia. Excessive fatigue, either mental or physical, by impairing the general health, places the system in a condition favorable to acquiring catarrh of the upper air passages.

Pathology of Acute Catarrh.—The mucous membrane, the blood-vessels, nerves, lymphatics of the rhino-pharyngeal cavities, supply or communicate with those of the eye, frontal, ethmoid and sphenoidal sinuses, the antrum, maxillars, the middle ear, lower pharynx, the tonsils, buccal cavity, larynx, trachea, bronchi and lungs; consequently an irritation or inflammation of the superior respiratory tract is easily extended to these parts by reflex action or continuity of tissue.

The force of irritation and inflammation in acute catarrh of the upper air passages may be confined to the nares *per se*, the naso-pharyngeal chambers, or to the latter and the ethmoidal, sphenoidal and frontal sinuses and eyes, middle ears and antrum, or to the pharyngo-laryngeal cavities and trachea, and as the inflammation of one organ or region is of greater intensity and duration and predominates over the others, it is designated by that name, as rhinitis, rhino-pharyngitis, laryngitis, etc. Acute and subacute catarrh may end in resolution or in the chronic. When a chronic naso-pharyngitis is once established, it is quite easy to develop an otitis media, a conjunctivitis, a laryngitis, or rhinitis frontalis or ethmoiditis, sphenoiditis, or a tonsilitis. (The writer believes that catarrh of the upper air passages is the predisposing cause of phthisis in many cases—yes, in the majority of cases, it might be stated without exaggeration. Feebleness of constitution is inherited from consumptive parents, but consumption is not, it is acquired. "The discharge or secretion of catarrhal inflammation and the lymph channels afford the most favorable soil and habitat for the growth and reproduction of the bacillus tuberculosis," and when the catarrhal secretions contain bacilli they are capable of affecting healthy persons when dried, pulverized, and blown by the air and respired; hence, to avoid phthisis pulmonalis, keep the constitution normal, the upper respiratory passages healthy, and prevent a suitable soil for the development and reproduction of the bacillus tuberculosis. In every case of phthisis pulmonalis the writer has observed, rhino-pharyngeal catarrh, in one or more of its stages, was present.)

For convenience and perspicuity acute catarrh may be divided into three stages. 1, the dry or congestive; 2, the moist or liquefactive; 3, the muco-purulent.

In the first stage there is an irritation of the mucous lining directly or reflexly; following this, there is dilatation of the blood-vessels with hyperæmia, redness, heat, tumefaction, and pain from pressure on the terminal ends of the nerves. Rhinoscopic examination shows a red or dark red, dry, congested, swollen appearance of the mucous lining, the blood-vessels are distended, enlarged, elongated and tortuous, and the lining often quite œdematous in those parts where it is loosely attached, or where it lies upon loose areolar tissue beneath.

Second Stage.—In addition to the first stage there are the following abnormal conditions, transudation of serum, diapodeses of the white corpuscles, infiltration of the connective tissue, cell proliferation, organization of lymph. The walls of the mucous follicles are swollen, they are distended, abnormally active, and throw out an abundance of mucus upon the surface of the mucous membrane. The mucous and submucous areolar tissue are infiltrated, thickened and œdematous. On rhinoscopic examination the dry, red,

glazed appearance has given way to a moist, juicy state of the surface; irregular elevations are seen corresponding to the distended crypts. There may also be infiltration and œdema of the turbinated processes and septum, causing nasal occlusion, enlargement and tenderness of the anterior cervical and maxillary glands, uvula, palate and tonsils.

The third stage is a continuation of the second, and is diagnosticated by a denudation or an erosion of the epithelial layer, leaving a raw surface, especially where there is much desquamation; supplementing this is a muco-purulent or a purulent secretion. Should resolution take place, the inflammatory products are absorbed, the blood-vessels contract to their normal size, excessive secretion is arrested, and the mucous surface presents its former healthy appearance.

On microscopic examination the mucous secretion contains tessellated and squamous epithelium, also columnar ciliated epithelium. The secretion from the upper pharynx is columnar ciliated epithelium; from the lower squamous epithelium; the epithelium of larynx below the superior vocal cords is columnar ciliated, above this point squamous; that of the trachea is also columnar ciliated. There are in addition, in the second state, mucus, white and red blood corpuscles, and pus corpuscles in the third stage.

Should acute catarrh not end in resolution, but in the chronic, there are developed in the mucous and submucous or connective tissue new layers of connective tissue elements. In the epithelial, there is an increased activity of cell growth by which it becomes abnormally thickened and hypertrophied, the glandular tissue is also involved, but to a limited extent. In the nasal cavities, the thickening is a regular and uniform hypertrophy, but appears irregular and nodular on the mucous surface. The hypertrophy is developed to its greatest extent in the turbinated bones; the inferior more than the middle, the latter more than the superior. The meatuses and septum are also affected by the infiltration.

Atrophic catarrh usually follows the hypertrophic and is generally late in developing, but may occur early, from recurrence of the acute or subacute catarrh, by which a deposition of lymph into the submucous connective tissue around the glands and follicles results, causing pressure on their orifices preventing the escape of mucus. After this pressure has existed for some time atrophy of the glandular and follicular tissue takes place.

ABSCESS OF LIVER: RECOVERY.

BY L. L. WILLIAMS, M.D.,

PASSED ASSISTANT-SURGEON, U. S. MARINE-HOSPITAL SERVICE.

C. B., seaman, aged 36 years, native of Maine, was admitted to the U. S. Marine Hospital, at Boston, Mass., Feb. 14, 1888, with symptoms of ulcerative colitis. He had had diarrhœa for two years, the discharges being watery and occasionally mixed with mucus and blood. There was tenderness on pressure over the entire course of the colon, notably the ascending portion. Examination of the rectum with the speculum gave a negative result. Patient's appetite was poor and his appearance anæmic. Ordered opii pulv. and bismuth subnitr., milk diet, and rest in bed. Under this treatment there was some improvement of the intestinal symptoms.

April 4th. Had a chill, followed by fever and sweating. Had been complaining of pain in right hypochondrium for several days previously. From this time patient had irregular chills and sweats, with increased temperature. Tenderness developed over the hepatic region, and the area of hepatic dulness was found to be abnormal in extent, reaching from just below the nipple to a point 3 centimetres below the border of the ribs. From the symptoms and history a probable diagnosis of abscess of the liver was made, and on April 11th the aspirator was introduced in the eighth intercostal space and 100 cc. of viscid, blood-stained pus evacuated.

April 15th. 300 cc. of pus removed by the aspirator; pain relieved by the operation and patient slept better.

April 20th. 500 cc. of pus removed by the aspirator. As the abscess was evidently enlarging, it was determined to resort to a more radical operation.

On April 22d an incision was made in the eighth intercostal space, between the axillary and mammillary lines, and extending down to the surface of the liver. The chest cavity was obliterated at this point, owing to adhesion of the costal and diaphragmatic pleura. As no fluctuation could be detected, the incision was continued into the tissue of the gland, in the direction of the previous punctures, and the abscess cavity entered about 3 centimetres below the surface of the organ. The opening was enlarged by the forceps and rather more than 1000 cc. of reddish, grumous pus evacuated. The cavity was irrigated with 1:20,000 warm corrosive sublimate solution, a large drainage tube introduced, a dresssing of absorbent cotton, wrung out of sublimate solution, applied and the whole covered by a large pad of oakum secured by a bandage. Cocaine was used as a local anæsthetic.

Next morning, April 23d, the dressings were found saturated with pus and bile, and patient was decidedly jaundiced. The abscess cavity was irrigated with solution of bichloride of mercury, 1:20,000, but this caused so much pain and symptoms of collapse that it was never repeated. For the following notes I am indebted to Assistant-Surgeon G. T. Vaughan, M. H. S., who at this time took charge of the case.

"The abscess continued to discharge freely through the drainage tube, gradually decreasing in quantity, till the 12th of May. On this day, as there had been only a small amount of serum on the dressing for two or three days, the tube was removed.

"Patient's condition steadily improved from opening of the abscess. Temperature 36.8° C., in morning, 37° C., in evening—once only reaching 38° C.

"Dicharged, recovered and seaworthy, June 4th, 1888."

CLINICAL AND EXPERIMENTAL RESEARCHES UPON THE PATHOGENESIS OF FEVER AND THE PATHOGENIC ACTION OF SOLUBLE FERMENTS.[1]

A Paper presented before the Academie de Medecine of Paris.

BY M. ROUSSY.

[Translated from *La Semaine Medicale* by ARCHIBALD CHURCH, M.D., of Chicago.]

In bringing forward to-day the second part of the investigations I have undertaken in regard to the pathogenesis of fever, I will recall that M. Hayem three weeks ago presented to the Academy in my name a new chemical substance, pyretogenine, isolated from a microörganism and possessing the singular property, in minute doses, of determining intense and typical attacks of fever.

In the paper describing at length the physiological effects produced by this substance, I announced that I had also experimented with other substances which I proposed to range under the denomination of calorigenes or thermogenes, because they only determined a feeble elevation of temperature without producing the other perturbations characteristic of fever. Further, I announced the existence of frigorigenes, chemical substances of microbian origin, among which was one more energetic than the others that I designated frigorigenine.

I gave in my first paper neither the name of the microörganism which had furnished the pyretogenine nor the process which I had employed in its extraction, but promised to make both known in a subsequent communication, which to-day I submit in two parts. In the first I make known my chemical and experimental investigations of the pathogenesis of fever, and in the second I bring forward a general theory as to the nature and the physiological and pathogenic *rôles* of diastases or soluble ferments.

First as to the clinical observations. I noted intense fever occurring in adults and children after overeating, after the ingestion of stale beer, of tainted meat, of stagnant water containing dead leaves, hay or flax. The abrupt appearance of this fever and its more or less rapid and unexpected subsidence led me to the hypothesis that the cause was the presence in the organism rather of soluble substances than of microörganisms.

With the purpose of verifying this hypothesis I have experimented on rabbits and dogs with substances analogous to those which seemed to me to have produced the fever observed in man. These investigations, extending over more than three years and embracing more than 400 varied experiments, have led me to formulate the following conclusioms:

1. Subcutaneous and intravenous injections of stale beer, of macerations of hay, of tainted meat, etc., always determine fever in dogs and rabbits.

2. This fever appears very soon after the injection and shortly attains a temperature of 42° C. In these cases the injection produces an infectious disease which is generally followed by death. The intensity and rapidity which characterize this fever lead me to think that it should be attributed more to the soluble chemical substances than to the mechanical action of the microörganisms which are contained in the injected liquids.

3. Intra-stomachal injections produce but little fever in rabbits and are without effect upon dogs, leading to the thought that the soluble chemical substances are modified or destroyed in the intestine or in the organs they must traverse to enter the system, and possibly in dogs may not be absorbed at all.

Second, as to the frigorigenes or algogenes of microbian origin. These chemical substances may be encountered in animal matter destroyed by fermentation. They are susceptible of extraction by ether, chloroform and alcohol.

The substance extracted by ether possesses the most energetic frigorigenic properties. It produces a temperature fall of 4° C. It seems to have a tendency to crystallize. It acts as a base in the presence of the ordinary reactive agents of alkaloids. For these reasons it seems proper to distinguish it by the special name of frigorigenine or algogenine.

The production of frigorogenic substances appears to be subject to particular conditions of animal fermentation by microbic action, for one does not encounter these products in all animal matters undergoing fermentation, or at least in all stages of that fermentation.

The existence of these substances being absolutely certain, they should be sought in the cultures of cholera bacillus and in patients presenting temperature below the normal.

In experimenting with the putrid liquids cited above I have been particularly struck, in many instances, by the pyretogenic power of stale beer. Examining more closely the composition of this liquid I found in it a large number of yeast cell-

[1] This article takes up the very interesting subject of disease, and particularly fevers, being produced by the chemical products of bacteria rather than by the mechanical action of the bacteria themselves, and seems to point the way towards a more intimate knowledge of pathology.

ules. In using the stale beer I have then, in short, merely employed a maceration of yeast cellules. I was thus led very naturally to attribute the pyretogenic properties of the liquid to the yeast spores which it contained in such great abundance.

Such is the starting-point of all the experiments I have subsequently made with the soluble products of the yeast cellules, and which have given me such satisfactory results.

Third. The water used to wash the living spores of beer yeast possesses energetic pyretogenous properties which may not be attributed to the mechanical action of the microörganisms, and which are due to the soluble chemical substances held in solution. These substances are nearly entirely retained in the pores of the finest mineral filter, and filtration by means of such a filter is an undesirable proceeding in making a study of soluble substances. Solutions of chlorate of strychnia perfectly made lose their toxic properties by passing through a mineral filter, and accurate weighing shows that 70 per cent. of the strychnine remains in the filter. The same is true of curare. The best means of studying chemical substances in solution is to isolate them by chemical processes. The soluble chemical substances which impart the pyretogenic properties to the water which has been used to wash the cellules of yeast are the direct products of the microörganisms and constitute the results of their processes of secretion or excretion. These substances take on much more energetic pyretogenous properties when the spores are reduced in a neutral medium, such as distilled water, to a condition of autophagia. They may be extracted in sufficiently large quantity for separate study by treating a small quantity of sterilized distilled water containing several kilograms of spores with a large quantity of strong alcohol. Owing to their unequal solubility in water, alcohol, etc., they may be obtained separately and in a pure form. In this manner I have succeeded in isolating four substances, of which three are crystallized, and the fourth composed of fine homogeneous granules.

The most active of the substances elaborated by the yeast cellules, and which most influences the process of animal calorification, is the one presenting the granular form. Its pyretogenic energy is surprising. A few tenths of a milligram to the kilogram of animal weight rapidly produces in the dog an access of most intense and typical fever. This access of fever describes its evolution in nine or ten hours and in three phases, during the course of which all the functional troubles characterizing an access of paludal fever manifest themselves. By reason of its physiological potency, so powerful and so well defined; by reason also of its chemical properties, I think one could not do better than to designate this singular substance under the name of pyretogenine.

Among other chemical properties it has the power of breaking cane sugar into glucose and levulose. A minute quantity suffices to transform a relatively enormous amount of sugar. It acts, then, exactly as a diastase, and conducts itself toward reagents as a base.

I now come to the second part of my task, the general theory of the nature and the physiological and pathogenic *rôles* of the diastases or soluble ferments. Pyretogenine is, as we have seen, one of these soluble ferments which one invariably finds where cellules, without being destroyed, and whose action has hitherto been mysterious, seem to break up the organic molecules merely by their presence. Diastases appear to reduce organic material by chemical processes more or less analogous to those which take place in the reactions of sodium, potassium or baryta upon fats or upon albumen. Yet it is not absolutely known by virtue of what property these singular ferments act.

Now, in presence of the clearly toxic properties of pyretogenine, may one not suppose that the other diastases have similar properties, and that they reduce organic matter precisely because of this toxicity. This is a new and positive fact hitherto unknown to science, and seems to me to be great with consequences for general pathology. Its bearing cannot be mistaken by any one. To generalize: all spores, in short, all microörganisms, elaborate diastases or soluble ferments which they employ to attack and transform material either without or within the confines of their proper substances, and these ferments often have a most surprising chemical energy, liquefying the most resisting and apparently unattackable substances.

Three years ago nearly all microbiologists were occupied merely with the pathogenic *rôle* played by microbes considered in themselves the active elements. I would call attention particularly to the necessity of studying the pathogenic action of the chemical substances which are the results of their life-processes.

MEDICAL PROGRESS.

THE TREATMENT OF LOCOMOTOR ATAXY BY SUSPENSION.[1]—Under the above title, Dr. A. de Watteville has translated and edited the paper in which Professor Charcot describes the method of treatment of locomotor ataxy, and other spinal diseases, at the Salpêtrière, of which some account was first given in our pages in the letters on "Medical Paris of To-day." So much interest has been shown by our readers in this subject, and so many inquiries have been received, that

[1] Translated from the French of Professor Charcot, and edited by A. de Watteville, M.A., M.D., B.Sc., Physician to the Electro-Therapeutical Department of St. Mary's Hospital. With 4 illustrations and notes. London: D. Stott, 370, Oxford Street.

we publish subjoined that part of Dr. de Watteville's pamphlet which relates to the practice of the methods of treatment and its details. He writes as follows:

As was to be expected, some persons have already endeavored to improve upon the method, such as, for instance, by advising the adjunction of plaster spinal supports that are, to say the least of them, entirely superfluous under the circumstances, at any rate in cases of true ataxy.

Professor Charcot has thought it advisable, therefore, to publish the following technical details, suggested by an experience acquired in the course of over 800 suspensions, practiced under the supervision of his chief assistant, in the cases of forty patients. For, though the operation is, in itself, very simple indeed, it yet requires a certain skill that is more easily acquired with the assistance of definite rules, than by the sole experience of entirely original experiments.

The apparatus used is that contrived by Sayre, of New York, for the application of plaster jackets used in cases of spinal deviation. Though pretty extensively known, we shall give a short description of the form of it used in Professor Charcot's *clinique*. A transverse piece of iron, about eighteen inches in length, is suspended by means of a central ring to the pulleys which are used to lift the patient from the ground. Each extremity of the bar ends in a hook, intended to support the ring, which carries the straps intended to give support under the armpits. Several notches on the upper aspect of the bar serve to fix the rings from which hangs the head-piece. The latter consists mainly of two broad strips of leather, elongated oval in shape, moulded to receive the chin and the occiput respectively. These are connected above with the rings just mentioned, and are held in position by means of a strap sewn to the posterior flap, and fixed to buckles carried by the chin-piece, so as to hold the head-support in place when the patient is suspended.

Much depends upon this strap, which must be tightened enough to prevent any slipping, and yet not sufficiently to cause compression of the blood-vessels of the neck, and thereby unpleasant head-symptoms. It must be provided with a sufficient number of holes to accommodate itself to the varying thickness of the neck among those to be suspended. In case of need, which is not often, a soft body, such as lint or cotton-wool, may be inserted so as to prevent undue pressure of the strap or broad pieces upon the skin. It is necessary to exercise much care in fitting the head-piece and padding, so as to suit the peculiarities of each subject. The size of the head determines the notches into which the rings of the head-piece are to be fixed, the larger the head the wider apart they must be, of course.

When the head is duly disposed of, the shoulder-pieces are slipped under the armpits. Though they may appear of minor importance, they really play the part of regulators during the period of suspension. For it is necessary that whilst lifted off the ground the patient should not be entirely supported by the head-piece, for then the traction would become, in some cases at least, absolutely intolerable. Though the weight of the body must be distributed upon other points, this additional support must not be so effectual as to prevent as complete an extension of the spinal column as possible.

The shoulder-pieces consist of elongated cylindrical padded cushions, terminating in straps provided with a series of holes so as to suit, by appropriate lengthening or shortening, the requirements of each patient. This adaptation is very important; for if too short, the shoulder-pieces exercise such a pressure upon the axillary vessels and nerves as to compel the operator to bring the suspension to an abrupt and premature termination. If, on the other hand, they are too long, the traction on the structures of the neck may become too painful to be tolerated, and interfere likewise with the treatment.

Careful trials are necessary to determine the exact length of the several straps; but after three or four operations it becomes easy to decide the arrangement suitable for each case.

When all is ready the physician orders his assistant—with some practice he may do without one—to apply traction upon the core, very gently and slowly, so as to avoid jerks, and to accustom gradually the muscles and ligaments to the unusual tension to which they are going to be submitted. The patient is to be cautioned not to make any movements whatever whilst he feels himself being lifted off the ground, for they would give rise to unpleasant lateral and rotatory displacements.

As soon as the toes cease to touch the floor, the operator holds the patient lightly, so as to check any oscillation or torsion of the cords, and carefully watches the number of seconds that elapse, so as to regulate minutely the length of each suspension. During this period the patient is made, at intervals of fifteen or twenty seconds, to raise his arms laterally away from the body, so as to transfer more weight upon the head-piece, and so render the traction upon, and elongation of, the vertebral column still more complete, as complete as is tolerated by each individual. Much care and vigilance is to be bestowed upon the proper performance of these abductions of the arms, both by patient and physician. As a rule, the longest time of suspension must not go beyond four minutes, three minutes being taken as the average duration. Half a minute is enough at the outset, the maximum being gradually reached during the first six or eight applications of the treatment.

Here again it is essential to take into account certain individual susceptibilities or physical peculiarities, among which stands foremost the body-weight of the patient; for whilst a person weighing from about 130 to 150 pounds may be suspended forthwith during two minutes or more, the case is quite different in the case of those whose weight reaches 180 pounds or more. In the latter, the tension to which the structures of the neck are subjected may become very severe and painful, and be felt sometimes for a whole day afterwards—an occurrence which must be avoided if the treatment is to be correctly carried out.

It is well to note that certain patients have such a wish—a very natural wish—to get better, that they think themselves bound to stand any amount of pain without complaining; but this circumstance is positively detrimental to the success of the treatment, which must be accompanied with but trifling discomfort at the most, without real pain or fatigue, lest it should defeat its own ends.

The maximum length of the suspension must, therefore, be suited to the requirements of each patient; it is obvious that in the case of heavy persons the effect on the spine must be very thorough and effective, owing to the greater traction to which it is subjected. Suspension must not be carried out oftener than once on alternate days, otherwise it may become more hurtful than beneficial. The time of the day is indifferent, but regularity in the operations is to be observed.

When the full time has elapsed the operator very gradually lets the rope loose, so as to avoid every trace of jerking during the descent. The patient is to be supported whilst being freed from the apparatus, and made to rest awhile in an arm-chair brought near for the purpose.

The patient, before the operation, should divest himself from his coat, so as to give freedom to the arms, and his neck must be free from any pressure from the collar, so as to avoid any trouble or discomfort from compression about the neck. Sayre's original apparatus usually comprises a movable tripod, to the top of which the upper pulleys are fastened by means of a hook. This tripod is not to be used for suspending ataxics, who, being often deficient in power to sustain their equilibrium, are apt to seize convulsively its legs in order to steady themselves, and in so doing would knock down the whole apparatus, and injure themselves and the bystanders. The suspensory apparatus must be fixed to an iron ring firmly screwed in the ceiling.

"The results obtained by Professors Eulenberg and Mendel at the Berlin Clinic for Nervous Disease in the cases of twenty ataxics, fully confirm, so far as can be judged from the comparatively recent introduction of the new treatment, the encouraging outlook sketched out in Professor Charcot's communications. The improvement observed bears chiefly upon the walking power, the equilibration, the lightning pains, and, in a few cases, the bladder troubles. Moreover, no bad symptom whatever has been observed, even in the case of the female patients who are undergoing the regular course of suspensions. At the same time, the most sanguine observer must acknowledge that it is entirely premature to come to any definite conclusions upon a point of such deep perplexity as the question of the possibility of absolute cure in locomotor ataxy. Physician and patient alike must beware from falling into the temptation of conceiving exaggerated hopes as to the final results, in the presence even of effects as incontrovertible as those testified by so many able and critical observers."—*British Medical Journal*, March 9, 1889.

PUERPERAL FEVERS AND SEPTICÆMIA.—We copy the following from a letter by ROBERT BARNES, M.D., in the *British Medical Journal*, March 16, 1889.

By the term "puerperal fever," we must understand "fever in a puerpera."

As fevers of various kinds may assail non-puerperal persons, so they may assail puerperæ. We must, therefore, abandon the vain attempt to find one definite puerperal fever, and we must recognize the clinical truth that there are puerperal fevers.

There is, however, one constant underlying condition of all the puerperal fevers; that is, the puerperal constitution. This forms the soil in which all the disturbing influences work, in which noxious matters, from whatever source, internal or external, germinate, and which, without always destroying the individual properties of the foreign poisons, imparts to all some common features. It is also highly probable that under the mutual reactions of ingested poison and the puerperal constitution, new innominate poisons may be engendered.

The puerperal fevers may be classified under the two great divisions of autogenetic and heterogenetic. *a*. The autogenetic fevers are 1, the simple excretory puerperal fever, the result of endo-sepsis, or the arrest of the excretion of waste stuff of involution; it is especially prone to arise in damp cold weather. This form complicates all other fevers, even the septicæmic form; 2, the fever resulting from absorption of foul stuff from the parturient canal, either from the unbroken mucous surface, or by the open mouths of vessels, or from traumatic surfaces; this is autoseptic. This form is also likely to complicate other fevers; 3, this, the proper septicæmic puerperal fever, is revealed under the forms of metritis, peritonitis, pelvic cellulitis,

thrombosis, and general toxæmia. *b.* The heterogenetic fevers are due to a poison from without. These may be divided into 1, the cadaveric poison, which wrought such havoc before the days of Semmelweis, the septic stuff from other puerperæ, animal poisons of obscure origin; and 2, the known zymotic poisons, as small-pox, scarlatina, typhoid, diphtheria, erysipelas.

All the various modes of infection recognized as acting in non-puerperal subjects act in the puerpera; but she is especially open to invasion by direct inoculation by the parturient tract, and empoisonment by all routes is greatly favored by the peculiar activity of the absorptive function.

Can any one of the foregoing propositions be disputed? Are they not the direct expression of precise objective clinical observation, freed from the bias of subjective idols? What then becomes of the dogma of septicæmia pure and simple?

I have shown that this dogma is not only false, but therefore dangerous. To see in septicæmia the only evil is to fix all therapeutical energy upon what is commonly understood as antiseptic treatment. This is the course advocated by the more earnest of the septicæmic school. Without affirming that they recognize no other remedies, it is not too much to say that they carry the practice of antiseptic irrigations to an irrational extreme, and to the comparative neglect of other important indications. They assume, on the other hand, that those who deny the exclusive dogma of septicæmia are stricken with therapeutical impotence. "The doctrine of autogenesis," exclaims Parvin, "is a confession of ignorance, the creed of fatalism, the cry of dispair. . . . the very pessimism of obstetric medicine." Big words, full of sound, and little else! The truth is, that those who take a broad, comprehensive catholic view of the many factors in the etiology, and constitution of puerperal fevers, take also a broader, more philosophical, and more rational grasp of the principles of treatment, and especially of prophylaxis. I hope I may be pardoned for saying that in no text-book of obstetrics is antiseptic treatment more carefully described than in that which bears my name.

I may fitly conclude with citing from a paper on "Antiseptic Midwifery and Septicæmia in Midwifery."[1] "So far as antiseptic appliances are concerned, they can strictly only be regarded as subsidiary means in the carrying out of the great principle that lies at the bottom of all good obstetric practice—namely, to screen the lying-in women from those poisons and other noxious influences which threaten her from within and from without. It is not, therefore, desirable to devote special or separate attention to what, after all, is only a part of a great therapeutical scheme. The essential thing is to take such a large view of the physiological and pathological processes as will give the right indications to call upon each and all of the therapeutical agents at our command. To fix the mind too intently upon any one of these agents is to incur the danger of neglecting others, and of losing sight of the principle which ought to guide the application of all, as one force directed to one end."

[1] American Journal of Obstetrics, 1882.

A New Antidote for Morphine.—In the *Internationale Klinische Rundschau* for January 27, 1889, Professor Arpad Bokai recommends picrotoxine as an antidote for morphine, on the ground that it exerts an antagonistic action to morphine on the respiratory centres; for, while morphine tends to paralyze these centres, picrotoxine exerts a powerful stimulating effect. Since, therefore, death in morphine poisoning is usually attributable to paralysis of the respiratory centre, on this ground alone picrotoxine should be indicated as a valuable antidote. Further, morphine may produce such rapid reduction in blood-pressure as to endanger life; while picrotoxine, on the other hand, is a powerful stimulant to the vaso-motor centre, and is in this respect also an antagonistic to morphine. Professor Bokai adds that the action of morphine on the cerebrum is directly exposed to that exerted by picrotoxine. Finally, Professor Bokai suggests that the previous administration of a small dose of picrotoxine might reduce the danger of asphyxia in chloroform narcosis.—*Therapeutic Gazette*, March 15, 1889.

An Early Sign of Endocarditis.—Dr. Duclos, of Tours, writing in the *Revue Générale de Clinique et de Thérapeutique*, January 17, 1889, records a fact of his experience, in regard to commencing endocarditis, which may possibly be of value as an aid in the early recognition of this affection. While in charge of a military hospital he chanced to have a large number of young soldiers suffering from acute articular rheumatism under his care. One day, while listening to the heart-sounds of one of these patients, his finger being at the same time on the radial pulse, he was struck with the want of synchronism between the ventricular contraction and the pulsation at the wrist, the latter being delayed about two-thirds of a second. The following day a systolic apex murmur was heard. Thinking that this retardation of the radial pulse might have some significance in connection with the subsequent development of endocarditis, he took pains to note its occurrence in other cases, and found that it was followed by a murmur at the end of from twenty-four to thirty-six hours in every instance. These observations were extended over a period several years, and were confirmed in a number of cases by Professors Parrot and Potain.

The author has no conclusive theory to offer in

explanation of this phenomenon, but he thinks that it is probably due to a weakening of the muscular fibres subjacent to the endocardium. He compares it to the weakened respiratory murmur frequently observed at the beginning of a pleurisy a few hours before a friction sound is developed or effusion takes place. It would be interesting to learn whether this want of synchronism is present in the beginning of endocarditis arising in the course of other diseases, but the author has few observations bearing on this point to record. He has noted it, however, in two cases of typhoid fever and in three of erysipelas; in which endocarditis, subsequently developed.

Dr. Duclos draws some practical conclusions, in regard to treatment, based upon the early recognition of the affection, and he believes that he has succeeded in arresting the disease, in certain cases, before irreparable injury had resulted. His plan is to apply immediately a large flying blister over the præcordial region, or, in default of this, a mustard-plaster, dry cups, or leeches. He increases also the dose of the remedy that is being at the same time given for the rheumatism. Of course, a strict enforcement of recumbency is also indicated.

When we consider the importance of an early diagnosis of endocarditis, and the possibility of arresting the disease if detected in its incipiency, this alleged premonitory symptom of the affection is worth testing in order to determine the amount of practical utility that it may possess.—*Medical Record*, March 30, 1889.

WHEN TO PRESCRIBE DIGITALIS.—Notwithstanding the increasing additions to the list of so-called cardiac medicaments digitalis still holds its position as the most certain and most widely used; but in order to derive all the good possible from it is necessary to understand clearly the indications, and not to give it indiscriminately, as is too often done. MR. HUCHARD has set forth these indications very clearly in his recent work, "When and How Should Digitalis be Prescribed."

In order to understand clearly the indications and counter-indications, the valvular affections of the heart must be divided into four stages or periods. The first is the period of *ensystole*. During this time the lesion is compensated, and nothing should be done in the way of medication; all our efforts are to be confined to maintaining good hygiene. Digitalis is useless.

During the second period, that of *hypersystole*, the contractions are violent, and compensation is exaggerated. Hygiene still plays an important part, and the cardiac sedatives, aconite, arsenic and the bromides, are indicated; digitalis is injurious.

The situation is entirely different in the period of *hyposystole*, or temporary asystole. The cardiac muscle and vessel become asthenic. This is the stage of œdemas, congestion of the viscera, dropsies; the heart beats softly and feebly, etc. Digitalis is now of the greatest service; it is here triumphant.

Finally, in the period of *asystole* or *amyocardia* the cardiac muscle is profoundly degenerated; there is paresis of the heart, the *definitive cardioplegia* of Gubler. Digitalis is still sometimes useful, but it may in time become inefficacious, and occasionally it is injurious. Caffein in large doses is here sometimes very valuable.

Huchard considers a maceration of the drug as the best form for administering it. He does not give the infusion, which is preferred by some physicians, for, when it is necessary to act quickly, we cannot wait for twelve hours, which time is required for macerating. This is the method for making the maceration:

℞. Leaves of digitalis, in powder . . . 25 to 40 cent.
Cold water . . . . . 300 grams.

Macerate for twelve hours, and filter carefully, in order to avoid the retention of a certain amount of the powdered digitalis, which is capable of producing nausea and vomiting by its irritant action upon the mucous membrane of the stomach. The infusion may be sweetened with any agreeable syrup.

This maceration should be taken in five or six doses during the day, between meals; the digitalis should be prescribed in diminishing doses; thus, 40 centigrams the first day, 30 cgr. the second, 20 cgr. the third, etc. As a rule, the digitalis should be suspended after four or five day's use. (*Journal de Médécine et Chirurgie Practiques.*)—*New Orleans Medical and Surgical Journal*, March, 1889.

MAGISTERIUM BISMUTHI IN INFANTILE SUMMER DIARRHŒA.—In the St. Petersburg weekly *Russkaia Meditzina*, No. 30, 1888, DR. A. PÜGINOFF says that subnitrate of bismuth constitutes the most reliable remedy for epidemic summer diarrhœa in nurslings. He gives the drug in large doses, feeling sure that a pure preparation is excreted *per anum* wholly and in an unaltered state. Thus, to an infant of 4½ months, he administers 1½ or 2 grains every 2 hours. The main advantages of the subnitrate over all other means are stated to be these: 1. The drug does not give rise to any untoward accessory symptoms. 2. It is readily taken and perfectly well borne. 3. It acts on the intestinal tract both as a sedative and as an antiseptic.

THE TREATMENT OF CORNS.—DR. C. MCDERMOTT writes to the *British Medical Journal* that a saturated solution of salicylic acid in flexible collodion is an excellent remedy for corns. The corns should be painted twice a day. It takes about twelve days for their complete removal.

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SATURDAY, APRIL 13, 1889.

CLIMATIC INFLUENCE IN PHTHISIS.

The reception of a neat reprint edition of the excellent paper on the "Preferable Climate for Phthisis," read at the Ninth International Medical Congress, Washington, 1887, by DR. CHAS. DENISON, Denver, reminds us that there are few questions of more practical importance to the general practitioner, than the one so frequently asked by his patient affected with pulmonary phthisis, *i.e.*, Will a change of climate benefit me and if so, where shall I go? In assuming to answer the anxious inquirer by simply saying, "You better go to the mountains, or to California, Colorado, Texas or Florida, or in more general terms, to a mild, dry, and elevated region," more patients have been sent astray than in any other department of medical practice. That a large proportion of cases of chronic diseases of the lungs, including tubercular phthisis can be arrested, and many of them permanently cured by residence in a proper climate, commenced at the proper stage of the disease, has been proved by ample experience. The possession of accurate knowledge concerning the elements that give special character to climate and their influence on the functions of the human body, and the ability to ascertain the extent and stage of progress of the morbid conditions in each patient are the essential qualifications needed by every practitioner, who would do justice to those who depend upon him for advice. The studies necessary to gain the knowledge mentioned as constituting the first part of these qualifications do not hold as prominent a position in the curriculums of study, either preliminary or medical, devised for those who would enter the ranks of the medical profession as they should. Therefore Dr. Denison well says in the beginning of his paper: "Hitherto, the chief obstacles in the way of right conclusions have been: 1. Ignorance of the exact nature and progress of the disease, and 2, A lack of appreciation of the relative importance of different climatic attributes in its arrest."

A thorough knowledge of physics, topography and geology should constitute an essential part of the qualifications needed for entering upon the study of medicine; and the application of the facts and physical laws furnished by these branches, in the study of physiology, pathology, and etiology, in the medical course, should be much more systematic and thorough than has hitherto been done in most of our medical colleges. The word *climate* is used to indicate the sum or aggregate of qualities possessed by the atmosphere in any given locality and at any specified season of the year. The chief elements that determine the quality of a climate are 1. purity of the air or freedom from foreign ingredients; 2. temperature; 3. dryness; 4. rarefaction as determined by altitude; 5. the amount of sunshine; 6. electricity; 7. variability as opposed to uniformity; and 8. motion or wind. All these climatic elements are influenced directly or indirectly by the topography or configuration of the earth's surface, the composition of the soil and superficial strata in each locality, and the presence or absence of large bodies of water. The two elements, purity and rarefaction bear a direct ratio to altitude, while the temperature, dryness and amount of sunshine and electricity are influenced much by the altitude, latitude and composition and configuration of the earth's surface. An uneven, hilly or mountainous surface composed largely of sand, gravel or rocks, not only admits of free drainage, retaining less water for evaporation, but it both absorbs and radiates heat with rapidity; while a level surface composed of a liberal intermixture of clay, with the latitude and altitude the same, retains the water for evaporation, thereby giving to the superimposed atmosphere a much higher degree of moisture, while the absorbtion and radiation of heat are much slower. As the amount of sunshine and electricity depend

largely upon the amount of atmospheric moisture and currents with variability of temperature, it is readily seen that the composition and configuration of any locality must be taken into consideration in estimating the special characteristics of its climate. For the same latitudes we may deduce the following climatic law: The purity, coolness, dryness, rarefaction and sunshine will be in direct proportion to the altitude, and the unevenness and porosity of the surface; while the electricity and direction and velocity of the winds will be modified by the proximity of mountain ranges or large bodies of water. The influence of the several climatic elements mentioned in this law on the functions of respiration, circulation, elimination and nutrition, and their bearing or adaptability to the treatment of different stages of pulmonary phthisis will be briefly considered in the next issue of THE JOURNAL. In the meantime we wish every practitioner would read the paper of Dr. Denison, and as much of similar literature by other authors as he can find.

INTUBATION IN DIPHTHERITIC LARYNGITIS.

In the *New York Medical Journal*, March 9, 1889, DR. DILLON BROWN gives the result of 200 cases of intubation of the larynx for diphtheritic croup, performed by himself, and in addition collates from the published statements of 165 other operators in America, Germany, France, England, Spain and Canada, an aggregate of 2,168 cases, making, with his own, a total of 2,368 cases, by 166 operators. Of the whole number 647, or 27.3 per cent., recovered. Of the 200 cases operated on by Dr. Brown 54, or 27.3 per cent., recovered. He mentions having seen 23 additional cases that recovered without operation, and 4 that died, in which intubation was urged but refused. The alleged causes of death in 144 of the fatal cases intubated by Dr. Brown were: extension of the disease to the bronchi, 63; sepsis, 24; pneumonia, 15; exhaustion, 11; nephritis and convulsions, 11; sudden heart failure, 8; extension and pneumonia, 7; asphyxia 2; tuberculosis, 1; general paralysis, 1; and scarlet fever and sepsis, 1.

The general table of 2,368 cases given by Dr. Brown includes 158 cases reported by Dr. F. E. Waxham, of Chicago, with 43 recoveries. In a clinical lecture by Dr. Waxham, published in the *North American Practitioner*, March, 1889, he gives 30 additional cases, with 17 recoveries, making the total number of his cases 188, with 60 recoveries, or 31.3 per cent. Both Drs. Brown and Waxham report a higher ratio of recoveries in their later than in their earlier operations. This is attributed to the acquisition of greater skill by practice in the insertion and removal of the tube, and in guarding against accidents and complications. May not an important part of the higher ratio of recoveries be the result of an earlier resort to intubation without waiting until the patient is in such imminent danger of suffocation or fatal exhaustion, as is usual before obtaining permission to perform tracheotomy? And yet up to the present time the tabulated statements of both intubation and tracheotomy differ but little in the relative ratio of recoveries and deaths; and we have no means of knowing how many of those subjected to these operations would have recovered if no operation had been performed. The impression made upon the popular mind is, that every case recovering after either operation is a life saved by the operative procedure that would have been otherwise certainly lost. Such a conclusion, however, is not justified by a fair consideration of all the facts. To ascertain the real value of either intubation or tracheotomy in true diphtheritic croup we must be able to compare the results of the treatment of an adequate number of cases, in the same season, of similar age and in similar sanitary surroundings without operative procedures, with those subjected to the most skillful operative methods.

As stated above, Dr. Brown mentions having seen 27 cases that were treated without either intubation or tracheotomy, of which 23 recovered and 4 died. Another writer mentions 13 cases that were so bad operative procedures were deemed useless, and yet 4 of them recovered without such aid. Both Drs. Brown and Waxham concede the marked benefit derived from the efficient use of the bichloride of mercury as an internal remedy. The former states that of the last 115 cases on which he had practiced intubation 50 had been treated medicinally without the bichloride and 12, or 24 per cent., recovered. The other 65 were treated with the bichloride in doses of gr. $\frac{1}{40}$ to gr. $\frac{1}{80}$ every hour, and 24, or 36.9 per cent., recovered. In the foregoing comments we do not desire to discourage the judicious resort to operative

procedures in diphtheritic laryngitis when suffocation is imminent from the direct obstruction of the larynx, but simply to suggest caution in resorting to surgical methods too indiscriminately, and to the neglect of the most efficient medical treatment in the early stages of the disease.

THE OFFICIAL PRELIMINARY PROGRAMME.

We publish to-day the programme of the general sessions of the coming meeting of the Association. A better selection of those to deliver general addresses could not have been made. The reports from the officers of Sections also promise a most interesting and instructive series of papers for them. Excellent arrangements have been made for the meetings of the Sections. The social part of the meeting has not been forgotten. One of the pleasantest features planned by the Committee of Arrangements will be a steamboat excursion on the fourth day of the sessions, given by the Rhode Island Medical Society, to Providence, when the Rhode Island Hospital and Butler Hospital for the Insane will be inspected, and an old-fashioned clambake will be enjoyed at a shore resort on the way back to Newport.

EDITORIAL NOTES.

TEXAS STATE MEDICAL ASSOCIATION.—The next annual meeting of this Association will be held in San Antonio, commencing April 23, 1889.

THE OFFICIAL NOTICE OF THE NEXT ANNUAL MEETING of the American Medical Association, by the Permanent Secretary, will be found in the columns for Association News in the present number.

PHILADELPHIA POLYCLINIC.—The following recent additions and changes have been made: A chair of Diseases of the Mind and Nervous System and a chair of Obstetrics and Diseases of Children have been established; Professor S. Weir Mitchell has been appointed to the first and Edward P. Davis to the second. Dr. B. Alex. Randall has been appointed to the chair of Diseases of the Ear, in place of Dr. Burnett, resigned.

CHICAGO MEDICAL COLLEGE CHANGES.—At a recent meeting of the Trustees and Faculty, the regular annual college term was extended to seven months. Dr. G. W. Webster, who had given the course on Physiology during the past year, was unanimously elected to the professorship; and an *optional* full four years' course was recommended and will appear in the annual announcement.

THE WOMAN'S HOSPITAL MEDICAL COLLEGE OF CHICAGO held its nineteenth annual Commencement on the 2d inst., at which the degree of Doctor in Medicine was conferred upon 25 young women. The Rush Medical College had graduated 127; the College of Physicians and Surgeons 48; and the Chicago Medical College 46, young men; making the total number of graduates from the four regular medical colleges of Chicago for 1889, 246.

ARMY MEDICAL BOARD—VACANCIES IN THE MEDICAL CORPS.—In the columns for miscellaneous notices and news items of the present number, will be found an official notice from the Surgeon-General of the U. S. Army, stating that an Army Medical Board will be in session in New York City from May 1 to 31, 1889, for examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. We are informed that there are seven vacancies existing at present in the Medical Corps, to which another will be added in July by the retirement of a medical officer, making eight appointments to be recommended by the Board. Among the many recent graduates of the medical schools and hospitals of our country, there must be some ambitious for military life with its duties and honors, and if so, they cannot have a more favorable opportunity for presenting themselves than the one indicated in the Surgeon-General's notice alluded to above.

THE ETIOLOGY OF CONSTITUTIONAL IRREGULARITIES OF THE TEETH has been very carefully studied in some recent papers by DR. EUGENE S. TALBOT, of Chicago, the papers having been recently published in pamphlet form. He shows that constitutional irregularities of the teeth prevail to a greater extent among the idiotic, deaf and dumb, and blind, than among an equal number of strong and healthy persons, and claims that arrest of development is the result of malnutrition during embryonal and infantile growth, influenced by consanguineous marriages, scrofula, drunkenness in parents, prenatal influences, intrauterine education, and constitutional diseases, or of inflammation of the osteophytic membranes *in utero*. Irregularities of the teeth, he says, do

not exist among normal or large jaws, while among those who have abnormally small jaws, the majority have irregular teeth. In a second paper Dr. Talbot makes some very strong arguments in favor of arrest of development of the maxillary bones being due to race crossing, climate, and soil. It is shown that these irregularities of the teeth and jaws are not found in pure races nor in aborigines, while they are common in mixed races, and more common in the offspring of races differing widely from each other. Conditions of life, climate, soil, and food, play an important part in these irregularities, when taken in connection with race-mixture. Dr. Talbot then goes on to consider the subject in detail, and his papers are well worth careful study.

HYDRONEPHROSIS RELIEVED BY POSITION.—MR. R. H. A. HUNTER reports in the *British Medical Journal*, the case of a woman with a painful swelling in the right side, which had been increasing in size for three weeks. This was diagnosticated as a case of hydronephrosis, and the patient was directed to rest in bed with the pelvis elevated up on pillows. After remaining in this position for a few hours the patient suddenly felt a desire to pass water, and passed about a pint. In a short time she again passed about a pint and a half, and the swelling had disappeared.

ASSOCIATION NEWS.

American Medical Association. Fortieth Annual Meeting.

To be held in Newport, R. I., June 25, 26, 27 and 28, 1889.

The Fortieth Annual Session will be held in Newport, R. I., on Tuesday, Wednesday, Thursday and Friday, June 25, 26, 27 and 28, commencing on Tuesday, at 11 A.M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by Application shall consist of such members of the State, County and District Medical Societies entitled to representation in this Association, as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the President and Secretary of the Society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the last session: That in future, each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies, as above designated, are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the rolls the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send to him, annually, a corrected list of the membership of their respective Societies.

AMENDMENTS TO THE CONSTITUTION.

Amendment proposed by Dr. N. S. Davis, of Illinois:

"The General Committee shall be composed of two members from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy, and Marine-Hospital Service. They shall be chosen by the members registered and present at each annual meeting from each State and Territory, and from the Medical Corps of the U. S. Army, Navy and Mar.-Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose two members of the General Committee, one of whom shall serve one year, and the other two years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee two years. It shall be

the duty of the General Committee thus constituted, to organize by choosing annually a Chairman and Secretary, and such subcommittees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of the Association, and as often during that week as may be necessary; to nominate, on the third day of each annual meeting, all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial Council, and three members of the Board of Trustees for Publication, for election by the Association; to recommend the place and time of holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association, it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily by selections from the lists of delegates registered as present from the States to which the vacancies belong."

Should this provision be adopted by the Association, the Permanent Secretary should be authorized to substitute the name "General Committee" for "Nominating Committee," wherever the latter occurs in other parts of the Constitution and By-Laws.

Amendment offered by Dr. J. M. Keller, of Arkansas:

"To change the By-Law whereby the officers of the Sections are elected by the Sections."

Amendment offered by Dr. N. S. Davis:

"Strike out the last clause of paragraph VII, relating to individually affixing names to the Constitution and Regulations of this Association."

Amendments offered by Dr. H. N. Moyer, of Illinois:

"There shall be created a Section of Pharmacy and Materia Medica, which shall have its own autonomy, in like manner as the Section in Dental and Oral Surgery. Reputable members of the State Pharmaceutical Associations shall be eligible as members of the same on presentation of credentials from their State Secretary, but shall have no voice in the general sessions of the Association.

"The Section of Surgery shall hereafter be denominated the Section of Surgery and Gynecology.

"There shall be created a Section of Anatomy and Physiology.

"The Section of Obstetrics and Diseases of Women shall be abolished.

"The Section of Diseases of Children shall hereafter be denominated the Section of Obstetrics and Pædiatrics.

"The Section of Dermatology and Syphilography shall hereafter be denominated the Section of Dermatology and Genito-urinary Diseases.

"The Section of Medical Jurisprudence shall hereafter be denominated the Section of Mental and Nervous Diseases.

"The Section of State Medicine shall hereafter be denominated the Section of State Medicine and Medical Jurisprudence.

"The Section of Practice of Medicine, Materia Medica and Physiology shall hereafter be denominated the Section of Internal Medicine."

Committee of Arrangements: H. R. STORER, Chairman, Newport, R. I.

WM. B. ATKINSON, M.D., Per. Sec'y.

SECTIONS.

"The Chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including such suggestions in regard to improvements in methods of work, and present, on the first day of its annual meeting, the same to the Section over which he presides. The reading of such address not to occupy over forty minutes. . . . ."—*By-Laws.*

Practice of Medicine, Materia Medica and Physiology.—Dr. F. C. Shattuck, Chairman, Boston, Mass.; Dr. G. A. Fackler, Sec'y, Cincinnati, O.

Obstetrics and Diseases of Women.—Dr. W. H. Wathen, Chairman, Louisville, Ky.; Dr. A. B. Carpenter, Sec'y, Cleveland, O.

Surgery and Anatomy.—Dr. N. P. Dandridge, Chairman, Cincinnati, O.; Dr. W. O. Roberts, Secretary, Louisville, Ky.

State Medicine.—Dr. J. Berrien Lindsley, Chairman, Nashville, Tenn.; Dr. S. T. Armstrong, Sec'y, U. S. M.-Hosp. Service.

Ophthalmology.—Dr. George E. Frothingham, Chairman, Ann Arbor, Mich.; Dr. G. C. Savage, Sec'y, Nashville, Tenn.

Laryngology and Otology.—Dr. W. H. Daly, Chairman, Pittsburg, Pa.; Dr. E. Fletcher Ingals, Sec'y, Chicago, Ill.

Diseases of Children.—Dr. J. A. Larrabee, Chairman, Louisville, Ky.; Dr. C. J. Jennings, Sec'y, Detroit, Mich.

Oral and Dental Surgery.—Dr. F. H. Rehwinkle, Chairman, Chillicothe, O.; Dr. E. S. Talbot, Sec'y, Chicago, Ill.

Medical Jurisprudence.—Dr. James G. Kiernan, Chairman, Dunning, Ill.; Dr. T. B. Evans, Sec'y, Baltimore, Md.

Dermatology and Syphilography.—Dr. L. D. Bulkley, Chairman, New York; Dr. W. T. Corlett, Sec'y, Cleveland, O.

A member desiring to read a paper before a Section should forward the paper, or its *title* and

length (not to exceed twenty minutes in reading), to the Chairman of the appropriate Section at least one month before the meeting.—*By-Laws.*

OFFICIAL PRELIMINARY PROGRAMME.

FIRST DAY, TUESDAY, JUNE 25.

Assemble in Music Hall, Bellevue Avenue, at 11 A.M.

Meeting called to order by Dr. Horatio R. Storer, Chairman Committee of Arrangements.

Prayer. Rev. Thatcher Thayer, D.D. (Cong.), the senior clergyman of Newport.

Reading names of delegates and others thus far registered, by Permanent Secretary, Dr. Wm. B. Atkinson, of Philadelphia.

Announcement of the programme for the day, of halls for the Sections, that papers not already listed be handed to Chairman of Committee of Arrangements for reference to appropriate Sections, that Judicial Council meet at 2 P.M. at Newport Casino, and that, to prevent the usual haste and confusion, the delegates from the different States hold their separate meetings, to elect members of the Nominating Committee, at 9:30 A.M. Wednesday, at the Music Hall, half an hour before the general session.

Addresses of Welcome by Hon. Thomas Coggeshall, Mayor of Newport; by Dr. Henry E. Turner, of Newport, President of State Board of Health, on behalf of the profession of Newport; and Hon. James H. Eldredge, M.D., of East Greenwich, ex-President of Rhode Island Medical Society, on behalf of the profession of Rhode Island.

Presidential Address, Dr. W. W. Dawson, of Cincinnati, Professor of Surgery in the Medical College of Ohio.

SECOND DAY, WEDNESDAY, JUNE 26.

Meeting called to order by the President of the Association, at 10 A.M.

Prayer.

Reading continuation of registry list, of programmes for the day, and call for reports as to elections upon Nominating Committee.

Address on Medicine, by Dr. Wm. Pepper, of Philadelphia, Provost of the University of Pennsylvania.

Report of the Trustees of THE JOURNAL.

Consideration of proposed Amendments to the Constitution.

Announcement of Nominating Committee, and that it will report at close of Thursday's general session.

THIRD DAY, THURSDAY, JUNE 27.

Meeting called to order by the President, at 10 A.M.

Prayer.

Reading of continuation of registry list, and of programmes for the day, and notice that all new business must be introduced at to-day's session.

Address on Surgery, by Dr. Phineas S. Conner, of Cincinnati.

Introduction of New Business.

Report of Treasurer.

Report of Librarian.

Report of Rush Monument Committee.

Report of Nominating Committee.

FOURTH DAY, FRIDAY, JUNE 28.

Meeting called to order by the President at 9 A.M.

Prayer.

Reading of continuation of registry list, and of programmes for the day.

Address on State Medicine, by Dr. W. H. Welsh, of Baltimore.

Report of Necrologist.

Reading names of newly elected officers of the Sections and Delegates to Foreign Societies.

Introduction of the in-coming by the retiring President.

Response by the former.

Final Adjournment.

Special Attention is called to the following Rules of the Association:

It shall be the duty of every member of the Association who proposes to present a paper or report to any one of the Sections, to forward either the paper, or a *title* indicative of its contents, and its *length*, to the Chairman of the Committee of Arrangements at least one month before the annual meeting at which the paper or report is to be read. It shall also be the duty of the Chairman and Secretary of each Section to communicate the same information to the Chairman of the Committee of Arrangements concerning such papers and reports as may come into their possession or knowledge for their respective Sections, the same length of time before the annual meeting. And the Committee of Arrangements shall determine the order of reading or presentation of all such papers, and announce the same in the form of a programme for the use of all members attending the annual meeting. Such programme shall also contain the rules specified in the By-laws and Ordinances concerning the consideration and disposal of all papers in the Sections.

No report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee of Publication on or before the first day of July. It must also be so prepared as to require no material alteration or addition at the hands of its author.

Every paper or address received by this Asso-

ciation, or by a Section, and ordered to be published, and all reports of Committees, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

ORDINANCES.

Resolved, That the several Sections of this Association be requested, in the future, to refer no papers or reports to the Committee of Publication, except such as can be fairly classed under one of the three following heads, namely: 1. Such as may contain and establish *positively* new facts, modes of practice, or principles of real value. 2. Such as may contain the results of well-devised original experimental researches. 3. Such as present so complete a review of the facts on any particular subject as to enable the writer to deduce therefrom legitimate conclusions of importance.

Resolved, That the several Sections be requested, in the future, to refer all such papers as may be presented to them for examination by this Association, that contain matter of more or less value, and yet cannot be fairly ranked under either of the heads mentioned in the foregoing resolution, back to their authors with the recommendation that they be published in such regular medical periodicals as said authors may select, with the privilege of placing at the head of such papers, "Read to the Section of the American Medical Association on the day of 18 ." (Vide *Transactions*, vol. xvi, p. 40.)

Resolved, That no report or other paper shall be presented to this Association unless it be so prepared that it can be put at once into the hands of the Permanent Secretary, to be transmitted to the Committee of Publication. (Vide *Transactions*, vol xvii, p. 27.)

SOCIETY PROCEEDINGS.

Medical Society of the District of Columbia.

Stated Meeting, December 12, 1888.

THE PRESIDENT, THOMAS C. SMITH, M.D., IN THE CHAIR.

DR. A. A. HOEHLING read the history of a case of

PHTHISIS PNEUMONICA ET LARYNGITIS CHRONICA.

(See page 481.)

DR. BERMANN said he was much interested because in later years other ways of treating laryngeal phthisis have been tried with success—Rosenthal used beech-wood, creasote—published in Berlin four or five months ago—with doses beginning with 1 decigramme; second week 2 decigrammes, continued for a week, increasing 1 decigramme daily each week, until he reached 8 decigrammes daily. He, Dr. Bermann, had treated a severe case with creasote with marked benefit. Another treatment of laryngeal phthisis is by lactic acid applications, which he has used and been well satisfied.

DR. HOEHLING said in the case reported they had only made the man comfortable, and had not attempted any specific treatment.

DR. MURRAY said the disease is most distressing when it invades the larynx. He has never found anything to heal tubercular laryngeal ulcer in his own experience—has never tried lactic acid, insufflations of iodoform of idol, morphia, and of iodol and morphia, with good results. He thought the treatment with creasote was suggested about ten years ago by a Frenchman, and not by the Germans as he understood Dr. Bermann to claim.

DR. BERMANN did not claim that Rosenthal originated creasote treatment.

DR. MCARDLE: Having observed the effect carbolic acid has upon the kidneys wondered if creasote would have any deleterious effect upon kidneys if used as Dr. Bermann had described.

DR. BERMANN: The beech-wood creasote did not seem to act as other species did, and he had noticed no bad effect.

DR. C. E. HAGNER did not believe from his own experience that any tuberculous ulceration of the larynx was curable, and did not believe these ulcers ever existed without sufficient evidence of tuberculosis elsewhere. Thought from present state of knowledge we might as well give up when we saw the bacilli. Had never seen a tubercular laryngeal ulcer cured.

DR. H. L. E. JOHNSON did not think the creasote obtained from beech-wood could act physiologically different from any other variety; there was no difference chemically.

DR. BERMANN: Creasote from beech-wood had a different specific gravity; he did not know the chemical difference.

The discussion on Dr. Schaeffer's paper on

MICROSCOPICAL DIAGNOSIS OF CANCER

was resumed. (See pages 403 and 424.)

DR. BERMANN did not think it impossible to diagnose cancer of kidney and bladder from cells in the urine; he wished to put himself on record thus. Thought the case ought to be discussed otherwise than as cancer on account of the changes in the pathological condition due to the long presence of the stone in this case.

DR. GRAY was under the impression the diagnosis was encephaloid carcinoma, and the specimen slide which he showed proved to be a squamous epithelioma.

DR. SCHÆFFER said as to the statement of

encephaloid carcinoma he had merely taken the report; he had not seen the specimen at all.

DR. GRAY did not agree with Dr. Bermann. The majority of authorities on the subject deny the existence of a specific and diagnostic cell of cancer, in fact those claiming the existence of such a cell are in a noticeable minority, he could only recall to mind one such, namely, Ziegler, and his statements even not very positive. He did not believe it possible to diagnose cancer of kidney positively, unless fragments of the tumor were found in the urine, then it was possible by seeing the relation of the cells, the mere presence of a multinuclear epithelial cell is not diagnostic of cancer, because such cells may be formed in any inflammation of the urinary tract. A multinuclear epithelial cell simply means that the cell is undergoing division, and represents some form of karyokinesis. Diagnosis of cancer by such cells is simply guess-work. Considered the epithelial cell of cancer as a normal cell in an abnormal place.

DR. BUSEY: Could fragments of sufficient size come through the ureters?

DR. GRAY thought it were possible.

DR. J. F. THOMPSON was obliged to Dr. Gray for the opinion he had expressed. He had spoken the other evening in a general way and from a surgical standpoint. His remarks were meant to apply to cells found floating in the urine, and he had consulted his books and still believes there is no distinctive cancer cell. Dr. Gray had expressed his views so well that he had nothing else to say. He quoted from Holmes' Surgery in support of his argument.

DR. BERMANN differed from the opinions of Drs. Gray and Thompson.

DR. THOMPSON: The stone in the kidney in this case would change the appearance of the epithelial cells to such an extent that it would be utterly impossible to distinguish a cancer cell in it.

DR. SCHAEFFER, in closing, thought the subject had been exhausted, and was much gratified at the amount of discussion his paper had elicited. He had quoted extracts from a work on surgery to show that the attitude of modern surgeons was somewhat against the microscopist. There was such a thing as cancer and that it contained cells. When Dr. Gray said *he*, Dr. G., could not distinguish cancer cells except there be considerable tissue he, Dr. S., would not contradict him, because a gentleman who made such beautiful sections as did Dr. Gray was excusable for not having devoted a sufficient amount of time to the other branch of the microscopist. Dr. Thompson stands with the attitude of the majority of modern surgeons, but it was this theory he, Dr. S., was combatting.

DR. T. E. MCARDLE read the history of the diagnosis, course and treatment of a case of

PERITYPHLITIS.

(See page 406.)

DR. THOMPSON detected deep-seated fluctuation in this case at his first visit and operated on the following morning, making an incision 2½ inches in length, and carefully dissecting down to the peritoneum, and after incising it the pus was discharged, introduced two fingers and examined the appendix, carefully washed out the wound with an antiseptic fluid and left a drainage tube in the wound for a day.

DR. THOMAS E. MCARDLE reported a case of

ANEURISM OF THE AORTA, WITH SPECIMEN.

W. A. B., was born in Warren, Ohio, Dec. 15, 1845. He entered the army as drummer boy of Co. C, 84th Regiment Ohio Volunteers, not being old enough to enlist otherwise. In 1863 he entered the volunteer navy as Master's mate in the Mississippi squadron, and was soon promoted to an ensigncy. At the close of the war he was honorably discharged. He suffered with pleurisy during his infantry service at Cumberland, Md., and from malarial fever while on the Tennessee river. On April 19, 1887, he had an attack of "catarrhal strangulation," (?) from which he nearly died. The following August he began to complain of a pain in his chest, and his side and back ached. He was sent to Cleveland to consult the family physician, who diagnosed functional heart trouble and great nervous prostration. He recommended change of scene in a warmer climate, and in November the patient left for Florida, where he remained until driven away by the yellow fever in July, 1888. He seemed much benefited by his residence in Florida, gained flesh and almost completely lost his cough. In the spring, however, he suffered from fever and ague, and quickly lost all he had gained. He came to Washington in July, 1888, but I did not see him until Nov. 18. At that time he was in a very feeble condition. He suffered from a distressing cough, had severe pain in upper part of right side, had no appetite, and slept badly. He would not remain in bed, however, but persisted in getting up and dressing himself. Three days later I saw him again and he seemed not to suffer so acutely. On the morning of Nov. 30, whilst getting out of bed to dress himself, he suddenly expired.

Necroscopy by Dr. D. S. Lamb: Slight deformed prominence of upper, anterior, inner portion of right side of thorax corresponding to sternum and first three ribs. Upper right side of sternum eroded from pressure of aneurism. Right lung compressed by aneurism and by an effusion of blood in pleura which had clotted; firmly adherent to sac. There were also several old pleuritic bands of lower lobe not connected with aneurism; also three firm nodules, size of peas, in margin of lower lobe, two of them darkly pigmented, the other with a calcareous centre. Left

lung œdematous, serum in upper lobe colorless, in lower lobe stained with blood. Heart normal, displaced somewhat downwards by pressure of sac; contained small dark clots. Aorta atheromatous. On right side of ascending portion of arch was an opening 1.5 inch in diameter, leading into an aneurismal pouch, 6×4×4 inches in size, rather spherical in shape, with thin walls, well lined with laminated clot, and closely adherent to upper lobe of right lung and sternum as stated. Extreme right portion of sac had ruptured into right pleura, which contained more than ½ gallon of recent blood clot. Abdominal viscera, especially the liver, depressed well downwards towards pelvis by sac and coagula in pleura; all of them bloodless, otherwise normal. Bladder empty, normal.

Philadelphia County Medical Society.

Stated Meeting, January 23, 1889.

THE PRESIDENT, W. W. KEEN, M.D., IN THE CHAIR.

DR. EUGENE P. BERNARDY read a paper on

BINIODIDE OF MERCURY. ITS ANTISEPTIC USE.

When I read my second paper "On the Value of Biniodide of Mercury as an Antiseptic in Obstetrics," before the Philadelphia Obstetrical Society (April 1, 1886), I fully intended leaving the results of my investigations to the medical profession, and let them, by further trial, confirm the correctness of my conclusions.

In reading several papers on antiseptics, the biniodide of mercury is declared insoluble, and therefore difficult to use; in one paper, the cost is the objection, it being stated to be more costly than the mercuric chloride. It is to be sincerely hoped that pecuniary considerations will never interfere in the use of any medicine that will assist in saving a human life. I certainly made myself clear in regard to making the biniodide a soluble salt, and called attention to the addition of *iodide of potassium*.

Dr. P. K. Bolshesolsky,[1] of St. Petersburg, (*Vratch*, 1887, Nos. 10 and 11, page 220), from numerous experiments made by himself in Professor A. P. Dobroslavin's laboratory, concludes that biniodide of mercury is a more powerful and less poisonous antiseptic than corrosive sublimate. A solution of 1 to 4,000 destroys putrefaction-microbes more completely than a corrosive sublimate solution of 1 to 2,000. The biniodide dissolved in a solution of potassium iodide was recently tried, with apparently good results, in three cases of laparotomy, under Professor A. I. Krassowski; for washing the floor a solution of 1 to 4,000 was employed; for disinfecting the hands, 1 to 2,000; for instruments, from 1 to 2,000 to 1 to 3,000.

In the *Gazette de Gynécologie*, January 1, 1888, Professor Krassowski,[2] of St. Petersburg, reports a series of eleven laparotomies in which he used as an antiseptic equal parts of biniodide of mercury and potassium iodide in solution. Two deaths occurred from causes not connected with the operation; in each case post-mortem examination showed union of the wound by first intention, and absence of septic inflammation. The mercurial was first used in a strength of 1 to 1,000, which was progressively diminished to 1 to 4,000.

Krassowski concludes that a solution of 1 to 4,000 is an efficient antiseptic, and that this substance is less irritant than the bichloride, and can be applied to the integument in a 5 per cent. solution without producing irritation.

At the recent annual meeting of the Italian Obstetrical and Gynecological Society, Prof. Mangiagalli[3] stated that the biniodide of mercury was a more active antiseptic than corrosive sublimate, less dangerous, and less injurious to instruments. The strength of the solution was 1 to 4,000, iodide of potassium, chloride of potassium, or chloride of sodium being used to increase the solubility of the biniodide.

Dr. Rogée-Saint Jean d'Angely (*Semaine Médicale*) states that the biniodide of mercury is not irritant to wounds, and is a more powerful antiseptic than carbolic acid. It has no odor, and an alcoholic solution of 1 to 300 is soluble in all proportions in warm water. Lister's dressing is expensive, and not adapted for use in armies. Since 1885, he has employed exclusively the biniodide with dressings of cotton and gauze, and in 108 operations (32 major) had only one death.

Mr. David Webster,[4] in the *International Journal of Surgery*, October, 1888, states that the use of bichloride of mercury solutions in ophthalmic surgery has been abandoned at the Manhattan Eye and Ear Hospital, on account of corneal opacities following a certain number of cataract operations wherein those solutions were employed. The surgeon of the Royal Ophthalmic Hospital, about the same time, reported a similar experience. In March last he gave up the bichloride in surgical cases having corneal relations, and now uses Panas' fluid in all iridectomies and cataract extractions. The formula for this fluid is: biniodide of mercury, 1 part; absolute alcohol, 400 parts: pure water, 20,000 parts. The results under this plan have been unusually satisfactory.

In the number of the *Medical News* of June 16, 1888, is a copy of an article from the *Lancet* of

[1] New York Medical Record.

[2] New York Medical Record.
[3] New York Medical Journal.
[4] The Medical News, Philadelphia, December, 1888.

May 12, 1888, on "A New Antiseptic Soap," which states that, until quite recently a satisfactory soap containing as an antiseptic one of the salts of mercury, has been difficult to prepare on account of the alkaline soap refusing to yield a good lather, oleate of mercury being formed—a compound which has little or no germicidal action. One of the most powerful antiseptics of the mercury salts is, as is well known, the bichloride. Moreover, it is cheap, and easily soluble, but it has the disadvantage of being extremely poisonous, and easily reduced by albuminoid matter with which it combines, thus being rendered inactive. In a paper recently read before the Society of Chemical Industry, in Glasgow, by John Thomson, the solubility of the red biniodide of mercury (which is claimed to be even a more powerful antiseptic than the bichloride) in iodide of potassium has been made use of. It is stated to be permanent, having no tendency to separate, and to be more germicidal in its properties than any other antiseptic soap yet known. Experiments were made to demonstrate this. Sterilized silk threads were suspended in a solution of the biniodide soap for ten minutes, after being saturated with solutions containing well-known microörganisms, amongst which were the streptococcus scarlatinæ (Klein), bacillus subtilis, orange sarcina, white bacillus from Tweed water, organisms from putrid urine, the micrococcus of osteo-myelitis, aspergillus nigrescens, spores from various fungi, yellow micrococcus from pus, putrefactive organisms, bacterium termo, and bacillus scarlatinæ (Edington). The threads were then carefully washed to remove the soap, and placed in sterilized gelatine in the ordinary way. The threads were controlled by first sterilizing and then plunging into nutrient gelatine; if no growth occurred, they were accepted as being fit for use in the experiment. Washing the threads previously contaminated with organisms, two or three times carefully with distilled water, was shown, by experiment, not to remove the organisms; for, on being placed in the gelatine, growth readily took place. The results, as shown in tables, are very remarkable. In all the experiments, with a few very uncertain exceptions, growth of the organisms was completely prevented, even after the lapse of four days. Similar experiments, made with "carbolate of mercury" soap, showed it to be less powerful as a disinfectant, and much slower in its germicidal action. In experiments carried out in the same manner with antiseptic and ordinary soaps, it was shown that the growth of the organisms, in many cases, was not prevented. The importance of such a soap in medical and sanitary science is very obvious. The biniodide soap has been used in the treatment of eczema with well marked success, especially where the irritation is due to the fermentations of accumulated secretions, the fermentations being set up by microörganisms. It has also met with similar success when used in parasitic skin diseases, such as favus and ring-worm. As a parasiticide, too, the importance of its application to patients during the period of desquamation in scarlet fever is evident.

The interesting experiments, and the careful manner in which they were carried out, are my excuse for giving the above notes in full. They more than corroborate my opinion of the value of biniodide of mercury as an antiseptic.

As will be seen by the title of my present paper, I have embraced a larger scope than in my two previous papers, which were entirely of obstetrical cases. I have divided my paper: First, history of obstetrical cases; second, history of abdominal abscess intercurrent with typhoid fever; third, surgical cases; fourth, application of the biniodide of mercury wool to the chest in pulmonary troubles; fifth, as a disinfectant in the discharges (alvine) of typhoid fever.

(*To be concluded.*)

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the New York County Medical Association—A Paper on Diphtheria by Dr. J. Lewis Smith—Its Etiology—Mode of Propagation—The Specific Cause received chiefly by Inhalation with the Air—Capability of being Communicated from Man to Animals and the Reverse—Means of Prevention by different Modes of Disinfection, etc.

At the last meeting of the New York County Medical Association Dr. J. Lewis Smith read a paper on *The Cause, Mode of Propagation, and Prevention of Diphtheria.* Stating that, although the belief that this disease is of microbic origin is constantly being strengthened by the investigations made in regard to it, it is still a matter of doubt what microbe (or possibly microbes), is the causal agent, he first gave an admirable *résumé* of the bacteriology of the subject, as developed by various observers during the last twenty years. It was, he said, the conclusions of Drs. Curtis and Satterthwaite, based on their investigations made in 1877 under the auspices of the New York Board of Health, on the etiology and pathology of diphtheria, that evidently prepared the way for the theory that the bacteria themselves are not the direct cause of the disease, but that ptomaines produced by their agency may be. In his most recent utterances Oertel expressed the opinion that, while bacterial organisms gave rise to diphtheria, they did so not by their direct action, but by producing a ptomaine which infects the system

and causes the disease to become constitutional. The microbe itself was mostly confined to the surface, where the action of the virus is widespread and deep. The most eminent pathologists of the present time, said Dr. Smith, do not express any more positive opinions in reference to the action of the specific principle or germ of diphtheria. In the earliest formed membranes Oertel found that many kinds of microbes could be isolated, but practically there are two chief kinds: chain-forming cocci (the streptococcus), and rod-shaped bacteria with rounded extremities (bacilli). In a pseudo-membrane of twelve hours' continuance micrococci abounded mostly on the surface, but in the fibrinous network the bacilli, often in colonies, preponderated. In a specimen of twenty-four hours' duration the upper surface was full of cocci, and below them were bacilli. In concluding this portion of the subject Dr. Smith stated that during the past year Dr. T. Mitchell Prudden, one of the most skilled and trustworthy of our pathologists, has been making a series of careful investigations, the results of which will shortly be published in the *American Journal of the Medical Sciences*, which seem to indicate the strong probability that the specific microbe of diphtheria is a streptococcus.

In treating of its mode of propagation, he said that no fact was better established than that diphtheria does not arise *de novo*. Like eruptive fevers, it is produced by the reception in or upon some part of the system of the preëxisting specific poison. The extreme contagiousness of diphtheria from person to person is well known, and the virus adheres tenaciously to objects on which it happens to alight. The clothing of a patient, even when the disease is of the mildest form, his bedding, the furniture of his room, and the objects which he handles, may for weeks afterward communicate the disease. Dr. Sternberg, in his recent Lomb Prize Essay, also mentions the fact that all damp, foul places, such as sewers, cellars and ill-ventilated spaces under floors, afford conditions favorable for the development and propagation of the diphtheritic virus. The virus, once received, may be propagated in such a place for an indefinite time and, ascending in the vapors which arise from this culture-bed, it is liable to communicate the disease to any one who inhales it. Thus, in New York City, prior to 1850, although foul sewers and unsanitary conditions existed, there was no diphtheria; but in the decade following 1850 this disease was introduced. The germ made its way into the sewers under ground, and now wherever sewer-gas escapes into the domiciles of the city it carries with it the diphtheritic poison. The amazing vitality and power of propagation of this virus are apparent when we reflect that it has permanently infected the New York sewers; so that children in all parts of the city are constantly falling ill with the disease. It is chiefly by exposure to the emanations from this widely extending culture-bed and to walking cases, often so mild that there is little or no complaint of the throat or impairment of the general health, that diphtheria is so prevalent here. The diphtheritic virus is so subtile, and its vitality and power of propagation so great, that when it is once established in a sewered city the disease can probably never be stamped out, as cholera and yellow fever can.

Diphtheria is commonly communicated by the inhalation of air containing its specific principle, from whatever source the latter may be derived. More rarely the contagion is contracted by means of direct contact with some infected substance, such as a particle of the diphtheritic exudate, muco-purulent secretion from an infected surface, or the blood of a patient. Observations are also accumulating which show that diphtheria, or a disease closely resembling it, occurs among animals, and is sometimes communicated from them to man. Having mentioned several recorded instances of this, he spoke of experiments by different observers which would seem to show that diphtheria can be transmitted from man to animals, and stated that if this were true, it might be inferred that it could likewise be transmitted from animals to man. Such observations and experiments, he went on to say, render it probable that genuine diphtheria, equally fatal, and attended by the same symptoms and anatomical characters as in man, does occur in birds, whether wild or domesticated, and in certain quadrupeds, as the rabbit. Nevertheless, it should be added that certain eminent pathologists, among them Virchow, have doubted the identity of animal and human diphtheria. With our present light upon the subject, he thought it was evident that, since our relations to domestic animals are so close, if they are sick with any disease resembling diphtheria the same precautionary measures should be taken to prevent infection of the family as in human diphtheria. Having stated that milk was a culture medium of various microbes, and that it was probable that it may be the medium of communication of diphtheria, as well as of scarlet fever, Dr. Smith referred to several instances of such apparent communication observed by different writers.

In concluding this portion of the subject he said that the fact that diphtheritic virus may be conveyed long distances without losing its power is now admitted from the many observations that have been made, and the statistics given by Prof. C. W. Earle, of Chicago, in his paper on this subject before the Ninth International Medical Congress, render it probable that the infection is not infrequently transmitted over long distances to salubrious rural localities by means of articles of clothing and merchandise.

In speaking of the prevention of diphtheria he

said that, as regards the small extent of the area of its contagiousness and the persistence and highly infective character of its virus within that area, this disease resembles scarlet fever, and is unlike measles and pertussis, the specific principles of which, although they have a wider contagious area, are more volatile and more quickly dissipated. The most efficient method of preventing the propagation of diphtheria, he went on to say, is the isolation and disinfection of patients, the prompt and thorough disinfection of the apartments occupied by them, with their furniture and bedding, and the exclusion or prevention of all noxious germs. He thought there was reason to believe that disinfection, as commonly practiced, is inadequate, and in this connection he referred to the outbreak of diphtheria in the spring of 1888, which he described in full in the paper on "Diphtheria of the New-born," which he read in May last before the Fifth District Branch of the New York State Medical Association. Here, it will be remembered, the ward was carefully fumigated with the dry vapor of burning sulphur, and after the fumigations there were found in the apartment quantities of living bacteria which were identical with those found in connection with diphtheritic cases previously treated there.

As bearing on this result he read an interesting communication from Dr. E. R. Squibb, the eminent chemist, of Brooklyn, sent in compliance with a request for his opinion; in which the latter stated that in our present state of knowledge all that could be said in regard to sulphur fumigation against infectious material was that it is of doubtful efficacy, with the weight of the highest authorities in bacteriology against it. But to this it must be added that it is still largely used by very intelligent bodies in large institutions, health-boards, etc., where it would not be likely to long maintain an unearned confidence. Dr. Squibb believed that many of the recent failures with sulphur fumigation might perhaps be due to the fact that the fumes were applied dry, while formerly the surfaces of the apartment to be disinfected were all wetted and the pot of burning sulphur was set in water or wet sand, in order that the heat might evaporate off a constant supply of watery vapor. Most, if not all, chemical disinfectants were in a state of tension, ready to change on coming in contact with the matter to which they were applied, and these changes were either by oxidation or di-oxidation; while the moment of greatest power or activity was the moment of change, when, by reacting on infectious matter they passed from a state of tension to a state of rest under new relations. The agency through which these changes almost invariably became operative was the vapor of water. Having explained the chemical reactions which took place when sulphur was burned in a moist atmosphere said that if no moisture was supplied that present in the air and on the surfaces of the chamber would soon be used up, and the dry gas remain in a comparatively inactive, inefficient condition. The anhydride would necessarily destroy all organisms which breathed in any degree, because breathing surfaces were moist. But in embryonic life protected by shell if the shell were dry the gas would be impotent. Many bacteriologists had admitted that burning sulphur would kill bacteria, but not germs.

Having mentioned that Dr. Llewellen Eliot had recommended during the continuance of a case of diphtheria the constant evaporation of turpentine over a water bath for the purpose of destroying the virus of the disease, Dr. Smith said that he had himself employed the following prescription for disinfection during his attendance on cases with apparently such good results that he felt encouraged to continue its use:

℞

Acid. carbolici	
Ol. eucalypti āā	f ℥j
Spts. terebinth.	f ℥vj

M

Of this, two tablespoonfuls are added to one quart of water, and the mixture placed in a shallow pan. It is to be maintained in a constant state of simmering in the room occupied by the patient.

He next prescribed the disinfection carried out some years ago by Prof. R. Ogden Doremus in the wards of Bellevue Hospital, where pyæmia had been prevalent, by means of chlorine gas, freshly set free; and then went on to say that diphtheria would continue to spread and largely increase the aggregate of deaths unless stringent measures were employed to prevent its propagation by mild walking cases. He saw no way of doing this except by enforced inspection and surveillance of children by parents, nurses and teachers; and he thought that wherever diphtheria was at all prevalent children who had the least sore throat should be excluded from the schools and compelled to remain at home.

In order to adopt adequate preventive measures the fact should also be recognized that third persons who have had no diphtheritic symptoms themselves and infected apparel or furniture may be the medium of communication. After recurring to several recorded instances of this kind, he said that nurses and physicians attending diphtheritic patients should avoid as far as possible the infection of their persons and clothing. Physicians in examining the fauces of children with diphtheria were very liable to receive upon their faces or clothes particles of the pseudo-membrane or infected muco-pus ejected by the violent cough excited by the examination. This might to a considerable extent be avoided by standing one side during the examination, but he himself constantly carried corrosive sublimate with him;

washing his face and hair with a solution of it before leaving the apartment if he suspected that he had received any particle of the infectious material upon his person. Physicians thus exposed should also make use of precautionary measures before going to visit other children.

In conclusion, he referred to the paper read by Dr. H. Caillé, before the New York Academy of Medicine, in January, 1888, on the prevention of diphtheria, in which he stated that occasionally children had a recurrence of diphtheria each spring or autumn. Thinking that such children might perhaps harbor or carry with them the germ of the disease, he selected eight children having a permanent residence who had had repeated attacks of diphtheria, and subjected them to prophylactic treatment. All carious teeth were extracted or filled, and the mouth was rinsed after each meal with a solution of potassium chlorate, sodium chlorate, or sodium borate. The solution was also gargled or drawn through the nostrils. With this treatment the children had escaped the customary diphtheritic attacks during the two years that had elapsed since it was undertaken. P. B. P.

LETTER FROM BOSTON.

(FROM OUR OWN CORRESPONDENT.)

Twentieth Anniversary of the Dental School of Harvard University.

At Huntington Hall, on March 11, were held exercises commemorating the twentieth anniversary of the Harvard Dental School. A large audience, composed of the alumni and their friends, many of whom were ladies, was present, and was much interested in the literary exercises. Chas. W. Elliot, LL.D., the President of Harvard University, presided in his usual easy and attractive manner, and in his brief words of welcome said that they had come together to felicitate the school and themselves on the work which the school had accomplished in the past twenty years. The school had some trials at its birth. The real difference of opinion was as to whether a dentist should be first educated in medicine and then adopt dentistry as a specialty, or whether a special school should be established for the sole education of dentists. Within the twenty years of the life of this school, there has been a wonderful change in medical education. When this school was founded, a medical student was required to pass four months of the winter three times, in attending precisely the same course of medical lectures. Now a medical student is required to pass three years or four, in the study of medicine, and it is true that the dental student of to-day passes as much time in medical study on his way to the dental degree, as the medical student did twenty years ago on his way to the medical degree. I believe that the Dental Department of Harvard University was the first one to be established in connection with a university of the liberal arts and the learned profession. This example has been followed by other universities, as, for example, the Universities of Pennsylvania, Michigan, Iowa and California. There is here a recognition of the worth and dignity of the calling which, twenty years ago, was lacking. We have also to rejoice together that the dental department of Harvard University has sent into the community a goodly number of highly trained and skillful men. Its instructions have been widely diffused not only over this country, but over Europe as well. The Dental School has more foreign students than all the other departments of the University put together, and these men have returned to their native countries, carrying with them the education of the Harvard Dental School. We believe that we have done good far beyond the limits of our own country.

In his address on the "*Twentieth Anniversary and History of the Dental School,*" L. D. Shepard, D.M.D., who was for many years connected with the school, first as Adjunct Professor and then as Professor in the department of Operative Dentistry, said: Twenty years ago but one school, our own, had any connection with a classical University. Now eighteen claim a more or less intimate connection with universities, and five with medical colleges, leaving seven, the same number as twenty years ago, distinctively dental colleges. To-day no college is considered respectable, or its diplomas recognized by the Examining Boards of the States, which graduates a man, no matter how many years of practice he may claim, except after actual attendance upon two courses of lectures in separate years. In important advances, our institution has generally been a leader and always has warmly seconded any advance proposed by another school.

In narrating the history of the origin of the School Dr. Shepard said that the annual address of the Massachusetts Dental Society, in 1865, was delivered by its President, the late Dr. Nathan Cooley Keep, and in accordance with his suggestions, a committee from the Society conferred with a committee from the Medical Faculty. The corporation of Harvard College, after full investigation of the reports, voted, on July 17, 1867, to establish the Dental School, and that the Faculty consist of the Professors of Anatomy, Physiology, Chemistry, and Surgery, in the Medical School; and of three new Professors, of Dental Pathology and Therapeutics, Operative Dentistry, and Mechanical Dentistry. In this vote the Board of Overseers afterwards concurred.

The spirit of that first Faculty was shown at the very commencement, for it decided that the Dental School of Harvard University should rank right and justice above expediency, should re-

quire only that a student should be a man of good moral character, and know no distinction of nativity or color, and among the six who twenty years ago received the dental doctorate, Robert Tanner Freeman was the peer of any as a student and a gentleman. His name stands to-day upon our records and will remain in history as the first of his race to receive dental collegiate honors.

At a Faculty meeting on Feb. 16, 1869, it was "Voted that *Dentariae Medicinae Doctor* [D.M.D.] be recommended to the Board of Government of Harvard University as the title for the degree to be conferred upon the graduates of the dental department." And on Feb. 27, 1869, the Corporation established this degree. There was no thought of arrogating to ourselves any special superiority or claim of exclusiveness. Further it was expected that the new degree would approve itself to other universities, which might have dental departments, and thus gradually become the accepted degree. That such has not been the result is no fault of ours. On March 6, 1869, was held at the old Medical College the examination of candidates for the degree. On March 10th occurred the Commencement. Professor Edward H. Clark, M.D., delivered the Address, and Professor Henry J. Bigelow, M.D., conferred the degrees upon the six successful candidates. We have met to-day to celebrate the quiet and modest exercises which took place twenty years ago in that old historic building.

In the Fall of 1871, upon the recommendation of the Faculty, the Corporation voted to abolish the custom, which was universal with the dental colleges, of allowing a practice of five years to be equivalent to the first course of study and the graduation of students after attending one course at the school. This was the most important innovation ever made in its good influence upon the profession and the colleges. It was equally important in its disastrous effect, pecuniarily considered, upon the School. The Faculty considered that this custom had been a great hindrance to progress. The Harvard School was the first, and for many years the only one, to enunciate the truth, and at great expense to itself that the college was designed to educate the young incomers to the profession, and not simply to supply the doctorate to the more or less skilled handiworkers who had practiced without a degree for five or more years. Boldly living up to its convictions it maintained unassisted for years this higher standard, and thus cut itself off from the support of a very large class of practitioners throughout New England who, having no degree and wishing one, would otherwise have attended its instruction and have been enrolled among its alumni.

In the winter of 1872 written examinations were substituted for oral, and the candidate was required to pass successfully in each subject instead of a majority of them, as had been the custom. The Harvard School was the first to recognize that the ordinary terms of study and discipline were too short to prepare the student properly for practice, and a summer course of four months immediately following the winter session was established. The summer school was a success and the idea was soon imitated by nearly all of the schools of the country.

On March 1, 1875, an entire change in the curriculum was made and the new scheme embraced

1. A consolidation of the winter session and the hitherto optional summer session into one school year extending from the last of September to the first of June.

2. A progressive course of instruction, extending over two years, the teaching of one year not being repeated in the next.

3. An examination at the end of the first year in anatomy, including dissection, physiology and general chemistry. Unless the student successfully passed two of these he could not be admitted to the studies of the second year.

4. At the end of the second year an examination in dental pathology, dental materia medica and therapeutics, oral surgery, and surgical pathology, operative and mechanical dentistry.

5. All the examinations to be conducted in writing.

6. The candidates must have passed a satisfactory examination in all of the above mentioned subjects.

This scheme has been in operation ever since, but few slight modifications from time to time having been considered necessary. It has resulted in securing fine scholarships and excellent skill. The entrance examination was not originated by the Harvard Dental School, and it was adopted by us, not from a feeling of its need, but because it seemed a good rule for all dental colleges. Harvard has never been selected by the ignorant any more than by the indolent. The Faculty have preferred to maintain this higher course rather than lower the standard to secure more students. The true principle was aptly expressed by President Eliot in one of his annual reports: "The University should be more concerned to have a very good school than a very large one." There are now sixty of its graduates occupying prominent positions in Boston alone. This School and that of the University of Michigan, founded in 1875 upon the same plan, received, without solicitation or knowledge beforehand, a distinguished mark of approbation from the General Medical Council of Great Britain. Of all the American Dental Colleges, their diplomas only exempt the holders from examination for registration and license to practice in Great Britain.

At the conclusion of the Address, Rev. Alexander McKenzie, D.D., who for fourteen years has been Secretary of the Board of Overseers of Harvard College, was introduced to speak on the

"*Relation of the University to the Professional Schools.*" He said that the schools are essentially part of the university which sends its blood and life through the world and shares its name and honor. It is a governmental relationship; for the schools are under the charter and statutes and authorities of the university. It is therefore a nourishing relation, the university is to care for the schools. The method of the bestowal must depend on what theologians call "distributive justice," which provides that every one connected with the system be treated according to his deserts and in relation to the great ends of the system, but it must see that no department gets anything that does not belong to it. The university has the strongest desire to advance the dental school, but its treasury has not the money which can be given to the school. The dental school must have money of its own. The record of the school is most creditable and its influence is felt throughout the world. It has forty-two students and eleven professors, and a fund of only $2,150, being dependent on the fees received from students for running expenses.

"*The Needs of the Dental School*" were set forth by Thomas H. Chandler, D.M.D., Dean of the School for the past fourteen years, who said: We may say briefly that the School lacks everything except zealous and competent instructors and devoted alumni. In our efforts to accomplish the work we have undertaken, we have been hampered and pinched on every side for twenty years. This work is the improvement of dental education by raising its standard, and the consequent elevation of the profession of Dentistry. A dental school should have a building specially adapted to its purposes, with large and well lighted operating-rooms and laboratories fitted with every necessary appliance, pleasant and comfortable lecture-rooms, clean and light reception-rooms for the patients who throng to it for treatment, suitable dressing-rooms, and whatever else can be devised for the comfort and convenience of its instructors, students and patients, not forgetting a well stored professional library and a good cabinet.

The Harvard Dental School, through the charity of the Medical School, has the use of a part of the old Medical building on North Grove Street. The operating-room is a large square room, well lighted near the windows, but unsuited near the middle for the delicate manipulations of tooth filling. This room is also used for a lecture room. The laboratory is in the basement, low, poorly lighted and inconvenient. We need a good building. We never shall be able to build one for ourselves; for our only resources are the fees received from the students, and if the amount of these fees exceeds in any year the running expenses, the surplus goes toward paying off our debt to the University treasury, a debt which exceeds by several thousand dollars all our assets.

Secondly, we need a fund for salaries, in order that the School may have a reasonably permanent corps of instructors in operative and mechanical dentistry, and may not lose year after year its trained teachers just when experience has made them doubly valuable. Professors and instructors should be paid. It is only in quite recent years that salaries have been paid to any teachers, except the demonstrators, who gave to the School the whole of their working time. Even now, the highest salary paid to a Professor is $500 a year, while a lecturer is paid only $100, and a clinical instructor only $50 a year. As soon as an instructor's time becomes decidedly valuable for private practice, a struggle begins between his love of teaching and his interest in the School on the one hand, and his sense of obligation to make the most profitable use of his time on the other. The result of this struggle generally is that after a few years the School loses an experienced instructor. The remedy for this evil is, of course, larger salaries.

Thirdly, the Infirmary needs a fund for its support. It is a charity which relieves much excruciating pain and prevents more. The community does not expect physicians and surgeons to maintain at their own expense hospitals for the sick and wounded. On the contrary, it gives great endowments and levies taxes to support such hospitals. It should also support a dental hospital.

The literary exercises were followed by a banquet at which were Governor Ames, with many officers of the University, members of the Dental and Medical Faculties and their friends, numbering considerably over a hundred. N.

Pregnancy, with Accidental Hæmorrhage; Difficult to Control and Difficult in the Diagnosis.

Dear Sir:—The following case seems to me to be of special interest:

Mrs. P., æt. 30 years, mother of five children and had had three miscarriages. Her mother died of disease of some one of the abdominal organs. Mrs. P. had her last monthly period the latter part of last July. On September 24, whilst sitting in a carriage watching a procession passing by, she was taken suddenly with uterine hæmorrhage and was carried into a drug store in a fainting condition. On November 20 she had recurrence of the hæmorrhage, and also on December 21. I saw her first on November 20. On December 29 she had another hæmorrhage. At this time she took to her bed and remained there. The hæmorrhage never afterwards totally ceased. January 1, 1889, patient had profuse hæmorrhage; also January 16 and 21. On the morning of January 23 I tamponed in order to stop hæmorrhage. From this time on to February 14 there was con-

stant oozing of blood. The patient became very weak and exsanguinated. The uterus was of abnormal size and very hard in the left hypogastric region; especially was this so the last month of her pregnancy. The os was that of a pregnant woman, but it was high up and difficult to reach with the index finger. If this be a case of pregnancy, where does the hæmorrhage come from? Is it a case of placenta prævia? If not a case of pregnancy, is it a case of fibroid tumor? Is it hydatids? or is it epithelioma? I could not hear the fœtal heart, neither could I, from palpation, make out pregnancy. I was in doubt till the pains came on at 6 A.M. February 14, and ceased at 2 P.M., dilating the os as large as a silver dollar, when I was first enabled to make a positive diagnosis of pregnancy. On February 16, at 1 A.M., the pains recommenced, and at 4.20 A.M. the liq. amnii sac enveloping a five to six mo. *in utero* child was born, which presented an egg-like appearance. The membranes contained no liquid and were tough and difficult to tear to expose the fœtus. The child was dead. The placenta was on the heel of this egg-like tumor, and showed unmistakable evidence of previously for some time having been about one-third part separated from the walls of the uterus. The treatment consisted of small and repeated doses of ergot; except when profuse hæmorrhage occurred large doses of this drug were given.

The child measured 13½ inches; that is, 7 inches from the crown of the head to the umbilicus, and 6½ inches from the umbilicus to the soles of the feet. Mrs. P. has now fully recovered.

JOHN M. BATTEN, M.D.
309 Fifth Ave., Pittsburgh, Pa., March 9, 1889.

BOOK REVIEWS.

RECTAL AND ANAL SURGERY; with Description of the Secret Methods of the Itinerant Specialists. By EDMUND ANDREWS, M.D., LL.D., Professor of Clinical Surgery in the Chicago Medical College and the Mercy Hospital, etc., and EDWARD WYLLYS ANDREWS, A.M., M.D., Professor of Clinical Surgery in Chicago Medical College and the Mercy Hospital. Second Edition Revised and Enlarged, with Illustrations and Formulary. Chicago: W. T. Keener. 1889.

It is but a short time since we noticed in these columns the peculiar merits of the first edition of this work. The fact that a second edition has been called for so soon is proof that its merits have been appreciated by the profession. The present edition is published in good style and the additions to the text are valuable; making it one of the best practical monographs on the subjects of which it treats, with which we are acquainted.

MISCELLANY.

MEDICAL GRADUATES.—Following are the numbers of graduates of medical colleges that have recently closed their sessions: Bellevue Hospital Medical College, 138; Long Island College Hospital, 47; University of Kansas City, 15; Medical Department of Arkansas Industrial University, 17; Kansas City Medical College, 18; Woman's Medical College of Pennsylvania, 36; University of Kansas City, Medical Department, 15; Miami Medical College, 22 (not 12 as stated); Chicago Medical College, 45; Toledo Medical College, 8; University of the City of New York, 180.

NUT-SHELL IN THE TRACHEA.—A piece of nut-shell, a third of an inch long and nearly that at its widest part, with one very sharp point, was coughed up by a 4-year old patient of Dr. H. Swift, of Adelaide, Australia, after being in the trachea fifty-two days. Tracheotomy had been done and the child had scarlet fever in the meantime, but made a good recovery. The case is reported in the *Australasian Medical Gazette* for December. The chief point of interest is stated by Dr. Swift to be the length of time the foreign body was retained without giving rise to any serious complication such as deep ulceration, abscess, collapse of lung or pneumonia.

THE NATIONAL ASSOCIATION OF RAILWAY SURGEONS will hold its annual meeting at St. Louis, Mo., on Thursday and Friday, May the 2d and 3d, 1889. The prospects are that this will be one among the largest gatherings of medical men ever assembled in this country. Dr. W. B. Outten, of St. Louis, is the Chairman of the Committee of Arrangements, and everything will be complete for the accommodation of the surgeons. Any information desired can be had by addressing the Secretary, C. B. Stemen, M.D., Fort Wayne, Ind.

THE *Memphis Journal of Medical Sciences* is a new monthly journal, edited by Drs. Alexander Erskine, B. G. Henning, T. J. Crofford, S. A. Rogers, W. B. Rogers, and James L. Minor.

AT the Centennial Celebration of Georgetown University Washington, D. C., last month, the degree of L.L.D. was conferred upon Dr. John B. Hamilton, Surgeon-General Marine-Hospital Service.

AUSTRALIAN RABBITS.—The Commission appointed to report on the means for arresting the multiplication of rabbits in Australia has reported that the experiments made under the direction of Pasteur, with the virus of chicken cholera, are an entire failure.

BEQUEST TO DENVER MEDICAL COLLEGE.—Mr. Jacob Haish, of DeKalb, Illinois, has recently given $15,000 to the medical department of the University of Denver, which makes a total of $40,000 that Mr. Haish has given to the University.

HEALTH IN MICHIGAN, MARCH, 1889.—For the month of March, 1889, compared with the preceding month the reports indicate that influenza and pleuritis increased and that scarlet fever decreased in prevalence.

Compared with the preceding month the temperature in the month of March, 1889, was much higher, the absolute humidity was more, the relative humidity and the night ozone were less, and the day ozone was the same.

Compared with the average in the month of March, in the three years, 1886–88, measles, intermittent fever, tonsilitis, inflammation of bowels, consumption of lungs and rheumatism were less prevalent in March, 1889.

For the month of March, 1889, compared with the average of corresponding months in the three years 1886–'88, the temperature was considerably higher, the absolute

humidity was slightly more, the relative humidity was less and the day and the night ozone were slightly more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of March, 1889, at 29 places, scarlet fever at 32 places, typhoid fever at 8 places, measles at 12 places, and small-pox at 5 places.

Reports from all sources show diphtheria reported at 2 places less, scarlet fever at 20 places less, typhoid fever at 3 places less, measles at 5 places more, and small-pox at 5 places less in the month of March, 1889, than in the preceding month.

CLAIRVOYANT "PHYSICIANS."—The opinion of the Supreme Court of Wisconsin, by Lyon, J., holding that a clairvoyant physician is liable for failure to exercise the ordinary skill and knowledge of a physician in good standing, practicing in the vicinity, and not merely to the ordinary skill and knowledge of clairvoyants. If he holds himself out as a medical expert and accepts employment as a healer of diseases, but relies for diagnosis and remedies upon some occult influence exerted upon him, or some mental intuition received by him when in an abnormal condition, he takes the risk of the quality of accuracy of such influence or intuition. There are so many persons now who assume to act as physicians and take the lives of people in their hands that this decision holding them to a strict liability may perhaps be timely.—*Legal News.*

AN ARMY MEDICAL BOARD will be in session in New York City, N. Y., from May 1 to 31, 1889, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application for the necessary invitation to the Secretary of War, before May 1, 1889, stating the place of birth, place and State of permanent residence, and enclosing certificates based on personal knowledge from at least two persons of repute, as to American citizenship, character and moral habits. Testimonials as to professional standing, from professors of the medical college from which the applicant graduated, and of service in hospital from the authorities thereof, are also desirable. The candidate must be between 21 and 28 years of age, and a graduate from a *Regular Medical College*, evidence of which, his Diploma, must be submitted to the Board.

Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

JNO. MOORE, Surgeon-General U. S. Army,
Surgeon-General's Office, Washington, D. C., April 1, 1889.

THE DISTRICT MEDICAL SOCIETY OF CENTRAL ILLINOIS will hold its annual meeting in Pana, April 30, 1889. Reports on Surgery, Obstetrics and Practice of Medicine will be read, and several papers on important subjects are promised. President, Jacob Huber, M.D., Pana; and Secretary, J. H. Miller, M.D., Oconee, Ill.

VACCINATION.—That obtuse fraction of the community which prides itself upon blind opposition to vaccination might be moved to a more liberal attitude on the subject if it would condescend to look into the results that have been reached under its practical application. In Paris, for instance, where the law requiring vaccination is feebly enforced, the mortality from small-pox ranges from 136 to 10.1 to the 100,000 inhabitants, while in the principal German cities, where the vaccination laws are rigidly enforced, the death-rate is but 1.44 to the 100,000 inhabitants. London, under compulsory vaccination, has a death-rate from small-pox of but 0.6 to the 100,000 inhabitants. On the other hand, in the Canton of Zurich, in Switzerland, since the compulsory vaccination law was repealed in 1883, the death-rate from small-pox has risen steadily from 8 to 85 to the 100,000 inhabitants.—*American Analyst.*

NECROLOGICAL.—Dr. A. M. Orcutt, of Hardwick, Mass., died February 11, 1889, aged 65 years. He graduated from the College of Physicians and Surgeons, Columbia Columbia College, New York, in 1849, commenced the practice of medicine soon after in Hardwick, and in October, 1850, married Mary, the daughter of Theophilus Knight, who still survives him with three daughters. Dr. Orcutt possessed superior native ability and a thorough knowledge of his profession, and enjoyed an extensive medical practice for nearly forty years. He had the confidence and esteem of all classes of the community and equally of his professional brethren. He was honored with various local offices, and served as Representative in the Legislature of the State in 1874. He became a member of the American Medical Association in 1884.

LEPROSY IN INDIA.—Under a call from the home Government, made in view of the possibility of more efficient measures by the State for the prevention and treatment of leprosy in India, the local authorities have furnished returns from which is gleaned the following information: In 1881, according to the census of that year, there were in India 131,618 lepers, of whom 98,982 were men and boys, and 32,636, not quite one-third, were women and girls. It is doubtful, however, if these figures represent the whole number, as many of these miserable creatures are secreted by friends. Of this great army of lepers about nine-tenths prefer local charity to organized relief, and resent even the slight restraints to which they are subjected in institutions devoted to their treatment, and avoid them in every possible way. As the disease can be stamped out only by the complete segregation of sexes and the life confinement of all tainted with it (measures so repugnant to the Hindoos as to be considered entirely impracticable), about all the Government can do for these poor wretches is to grant medical assistance and relief in voluntary hospitals and asylums, knowing that any relief can prove only temporary, and that even that cannot always be given.—*New York Evangelist.*

A WOMAN in Edinburgh, Scotland, is pregnant at the age of 62, it being her twenty-third time. She was also pregnant at the ages of 47, 49, 51, 53, 56 and 60. The case is attracting much attention from the physicians of that place, as it is a rare one.—*Wes. Med. Rep.*

ALUM IN BREAD.—Professor J. W. Mallet, of the University of Virginia, has been pursuing an interesting course of investigations into the effects produced by the use of alum in bread, and has found that, as has long been assumed, it is injurious. In the United States the greater part of the baking powders sold, it has been found, are made with alum, the acid phosphate of calcium, bicarbonate of soda and starch. The result of Professor Mallett's inquiry, as given in the *Pharmaceutical Journal*, has been to show that these powders give off very varying proportions of carbonic acid gas, and therefore different proportions have to be used for the same quantity of flour to produce the requisite porosity in bread. When moistened with water they yield small quantities of aluminum and calcium salts in a soluble form. Most of them leave, after use, the greater part of their alumina in the form of phosphate; but when acid phosphate of calcium is not used alumina is left. As the baking temperature in the interior of bread does not exceed 212° F., neither the water of combination of alumina or of its phosphate is removed from the residues of baking powder so used. However, in doses not very greatly exceeding such quantities as may be derived from bread as commonly used, Professor Mallet has found that hydrate and phosphate of alumina produced an inhibitory effect upon gastric digestion. He considers that this effect is probably a consequence of the union of albumina with

the acid of the gastric juice, and at the same time of the precipitation of the organic peptic ferment in an insoluble condition like a kind of lake. A similar action may also be exerted by hydrate of alumina upon some of the organic matters of food. From the general nature of the results obtained, it is inferred that not only alum itself is injurious, but that likewise the residues resulting from its use in bread-making must be ranked as objectionable, and that the practice of adding alum should be studiously avoided when the object aimed at is to make wholesome bread.—*British Medical Journal.*

PAMPHLETS RECEIVED.

Bosworth, F. H., M.D., New York City. *On the Relation of the Nasal and Neurotic Factors in the Etiology of Asthma.* Reprint from the New York Medical Journal.

Chisolm, Julian J., M.D., Baltimore, Md. *Eleventh Annual Report of the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore.*

Daly, W. H., M.D., Pittsburgh, Pa. *On some Mild Measures of the Treatment of Intra-nasal Hypertrophies and Inflammations.* Reprint from The Medical and Surgical Reporter.

Gay, George W., M.D., Boston, Mass. *The Comparative Merits of Tracheotomy and Intubation in the Treatment of Croup.* Reprint from The Boston Medical and Surgical Journal.

Peterson, Frederick, M.D., New York City. *Extracts from the Autobiography of Paranoiac.* Reprint from the American Journal of Psychology.

Station List of Officers of the Medical Department and Hospital Stewards of the Hospital Corps, United States Army, March, 1889.

Parrish, Joseph, M.D., Burlington, N. J. *The Medical Jurisprudence of Inebriety.* Reprint from the Journal of Inebriety.

LETTERS RECEIVED.

Dr. Samuel N. Nelson, Boston, Mass.; Dr. C. D. Watson, Ontario, Cal.; John F. Woodward, Richmond, Va.; Physicians', Dentists' and Druggists' Ins. Association, Chicago; American Oxygen Association, New York; Dr. Thos. B. Evans, Baltimore, Md.; American & Continental Sanitas Co., Limited, New York; H. M. Archer, New York; Dr. Wm. H. Martin, Urbana, Ind.; Dr. J. W. Breedlove, Fort Smith, Ark.; Dr. L. H. Dunning, South Bend, Ind.; Dr. W. Skilling, Lonaconing, Md.; Jas. A. Curran & Co., Denver, Col.; Dr. G. S. Gove, East Pasadena, Cal.; National Surgical Institute, Indianapolis, Ind.; Medicinische Monatsschrift, New York; Dr. H. F. Adams, Colton, Cal.; Dr. G. L. Magruder, Washington; Lea Brothers & Co., Philadelphia; H. H. Swearingen, Washington; Dr. John M. Batten, Pittsburgh, Pa.; Rio Chemical Co., St. Louis; S. S. White Dental Mfg. Co., Philadelphia, Pa.; Horlicks' Food Co., Racine, Wis.; Dr. Clark Cook, Fowler, Ind.; Dr. D. Dedolph, St. Paul, Minn.; Dr. H. K. Lathrop, Royal Oak, Mich.; A. Fielden Briggs, Ann Arbor, Mich.; Henry Bernd & Co., St. Louis; Edward O. Robinson, Burlington, Vt.; H. S. Anders, Philadelphia; H. P. Hubbard, Co., New Haven, Conn.; Dr. J. P. Symons, Savannah, Ohio; Dr. John B. Roberts, Philadelphia; Dr. Thos. W. Kay, Baltimore, Md.; A. B. Westfall, Louisville, Ky.; W. H. Siple, University of Va.; Dr. John B. Castle, Burgin, Ky.; Dr. F. J. Weed, Cleveland, Ohio; Dr. W. F. Boygess, Valley Station, Ky.; Wm. H. Johnson, Louisville, Ky.; Dr. J. Chancellor Gilbert, Wessington, Dak.; Dr. A. L. Hummel, Dr. R. J. Dunglison, Philadelphia; Dr. W. B. Spencer, San Francisco; G. D. Lummis, Middleton, O.; Dr. J. G. Carpenter, Stanford, Ky.; Dr. R. L. Thompson, St. Louis; Dr. D. W. Coker, Chicago; W. P. Cleary, New York; J. Astier, Paris, France; Dr. J. G. Smith, Canaan, Ala.; Dr. Russell Bayly, New York; Sharp & Dohme, Baltimore, Md.; Dr. John P. Stoddard, Muskegon, Mich.; C. J. Forbes, Lander, Tex.; Wm. Davis, Philadelphia; I. Halderstein, New York; Dr. C. H. A. Kleinschmidt, O. Swain, R. Middleton, Washington; J. H. Bates, New York; Dr. M. E. Bates, Chicago; Dr. H. R. Storer, Newport, R. I.; S. S. White Dental Mfg. Co., Philadelphia; Dr. Adam H. Wright, Toronto, Ont.; Dr. G. J. Holmes, New Britain, Conn.; Savage & Farnum, Detroit, Mich.; Lillian Dell, Lebanon Springs, N. Y.; R. A. Robinson & Co., Louisville, Ky.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 30, 1889, to April 5, 1889.

C. O. at Los Angeles, Cal., reports the death of Lt.-Col. R. H. Alexander, Surgeon U. S. Army, at 11:50 this morning, March 29, 1889. Telegram.

Lt.-Col. Charles H. Alden, Surgeon U. S. Army, Maj. Henry McElderry, Surgeon U. S. Army, Capt. Washington Matthews, Asst. Surgeon U. S. Army, and Capt. James C. Merrill, Asst. Surgeon U. S. Army, detailed as members of Army Medical Board to meet in New York City, May 1, 1889. Par. 5, S. O. 74, A. G. O., March 30, 1889.

By direction of the Secretary of War, the following changes in the stations and duties of officers of the Medical Department are ordered: Major Joseph R. Gibson, Surgeon, relieved from duty at Ft. Lyon, Col., and ordered to Ft. Sheridan, Ill. Capt. A. H. Appel, Asst. Surgeon, relieved from duty at Ft. Sheridan, Ill., and ordered to duty at Ft. D. A. Russell, Wyo. Capt. George H. Torney, Asst. Surgeon, relieved from duty at Ft. Monroe, Va., and ordered for duty to Ft. Brown, Tex. Capt. Samuel Q. Robinson, Asst. Surgeon, relieved from duty at Ft. Brown, Tex., and ordered to Ft. Hamilton, N. Y., for duty. Par. 11, S. O. 77, A. G. O., Washington, April 3, 1889.

Asst. Surgeon R. R. Ball, ordered to Ft. Riley, Kan., for duty. S. O. 36, Hdqrs. Dept. of the Missouri.

Asst. Surgeon R. W. Johnson reports departure for Whipple Bks., Ariz. Ter., March 25, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending April 6, 1889.

P. A. Surgeon E. H. Marsteller, ordered to the U. S. S. "Adams."

E. H. Stitt, of South Carolina, commissioned Asst. Surgeon U. S. N.

M. F. Gates, of Pennsylvania, commissioned Asst. Surgeon U. S. N.

Surgeon J. C. Boyd, detached from the Bureau Med. and Surg. Navy Dept., and ordered to the "Yorktown."

Asst. Surgeon M. F. Gates, ordered to the Navy Yard, Philadelphia.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Four Weeks Ending March 30, 1889.

Surgeon P. H. Bailhache, relieved from duty at Philadelphia, Pa., to assume charge of the Service at San Francisco, Cal. March 28, 1889.

Surgeon H. W. Sawtelle, when relieved at San Francisco, Cal., to assume charge of the Service at Portland, Me. March 28, 1889.

P. A. Surgeon C. E. Banks, when relieved at Portland, Me., to assume charge of the Service at Vineyard Haven, Mass. March 28, 1889.

P. A. Surgeon R. P. M. Ames, when relieved at Vineyard Haven, Mass., to assume temporary charge of the Service at Philadelphia, Pa. March 28, 1889.

Asst. Surgeon G. M. Magruder, when relieved at Louisville, Ky., to proceed to Memphis, Tenn., for temporary duty. March 28, 1889.

Asst. Surgeon J. B. Stoner, to proceed to Pittsburgh, Pa., for temporary duty. March 28, 1889.